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Natural Resources of

IDAHO

Prepared by the - United States Department of the Interior - Stewart L. Udall, Secretary



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Below the jagged summits of the Sawtooth Mountains lies placid Stanley Lake (left). In this secluded region is found some of Idaho's most striking and lovely scenery.

Natural Resources of Idaho

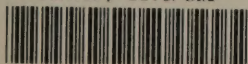
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(Front cover) Lake Coeur d'Alene—surrounded by rolling hills and tall evergreens—lies deep in the lumber country.

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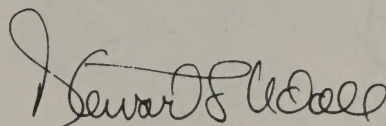


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The purpose of this booklet is to bring a new awareness on the part of the American people of our rich natural resource heritage, its history, its present, and its future. To know our land is to love it and cherish it and protect it from the ravages both of nature and man.



Secretary of the Interior.

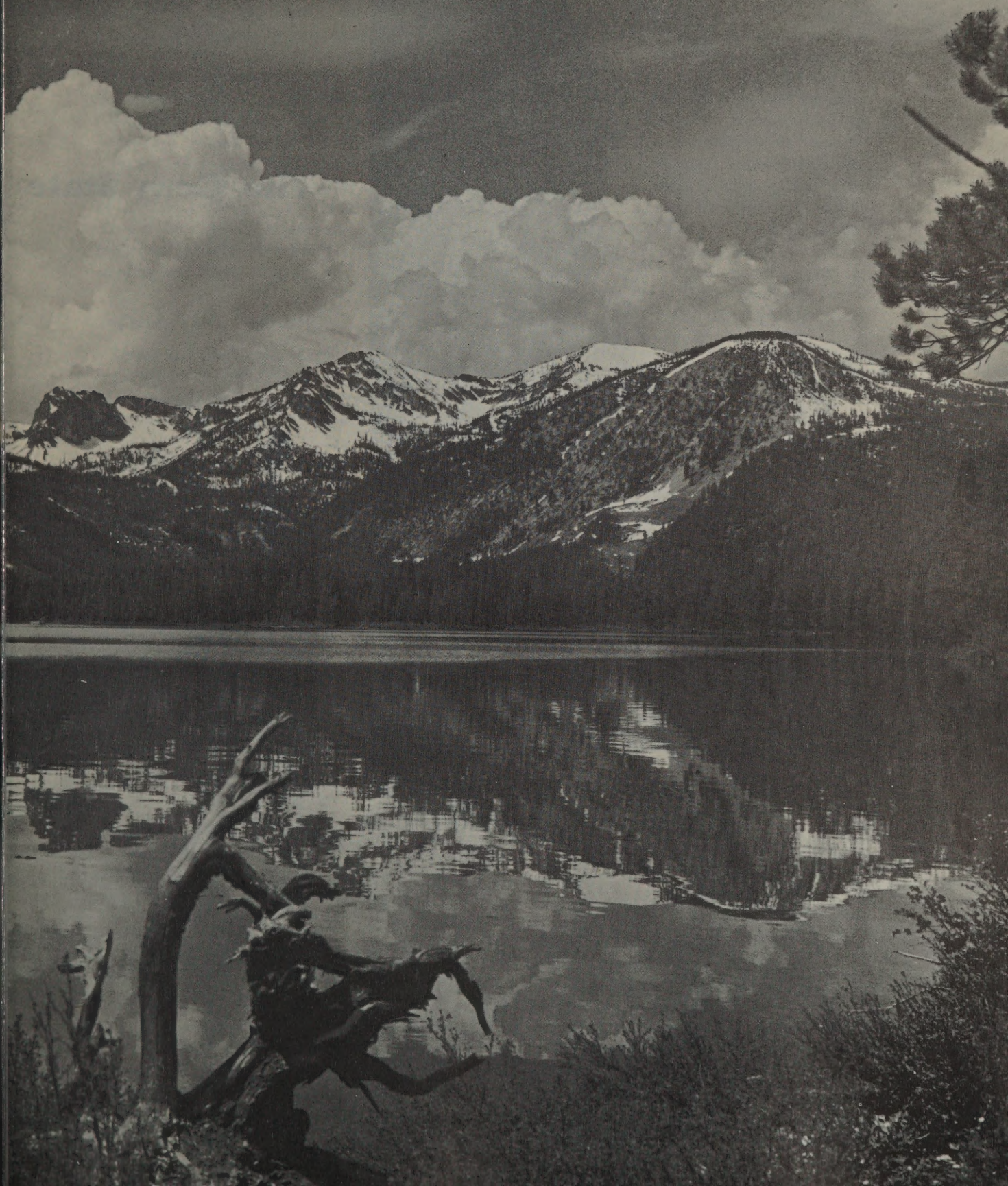
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Idaho: Where rugged mountains sweep the sky



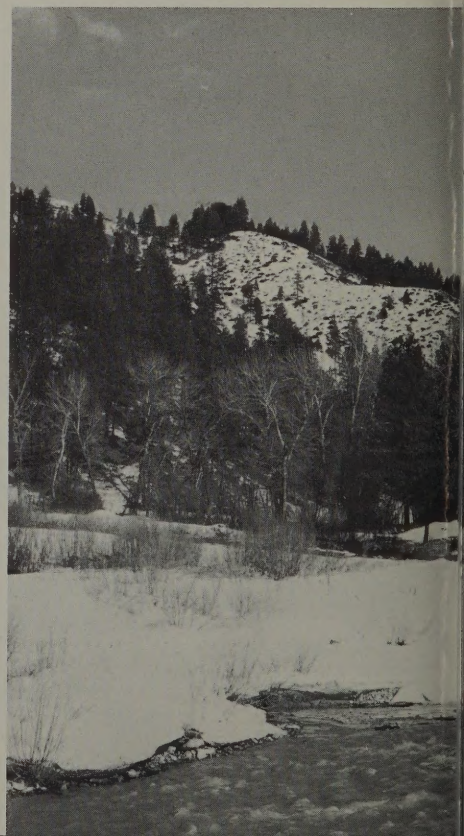
and solitude is mirrored in a quiet lake . . .





The Gem State

Whether it's splashing down from the rocks or winding through the high country, water lends beauty to the Idaho landscape. The forested mountains are also quite lovely.



The history of Idaho—the Gem State—has been as rugged and breathtaking as the State's scenic wonders. The State is part of a region that has been known by various names, such as Oregon Country, Pacific Northwest, Great Northwest, Far Corner, and Farthest Frontier. The Indians called it "E-dah-how," meaning "Behold the sun coming down the mountains." Except for the few cultivated valleys, Idaho is largely mountainous, from its Canadian boundary on the north to the temperate Cache Valley of Utah on the south. Nearly half the State is covered by valuable forests and game ranges. Idaho is a veritable network of wilderness areas, streams, and lakes.

Lewis and Clark Exploration

Lewis and Clark were the first white men to enter what is now Idaho. Commissioned by Thomas Jefferson to chart the vast Northwest Territory and to locate, if possible, the Columbia River, they left St. Louis in May 1804 with a keelboat and two Mackinaw pirogues. Little more than a year later they were the first to find the broad Columbia River from the landward side. The epic of their journey has hardly been surpassed in American history.

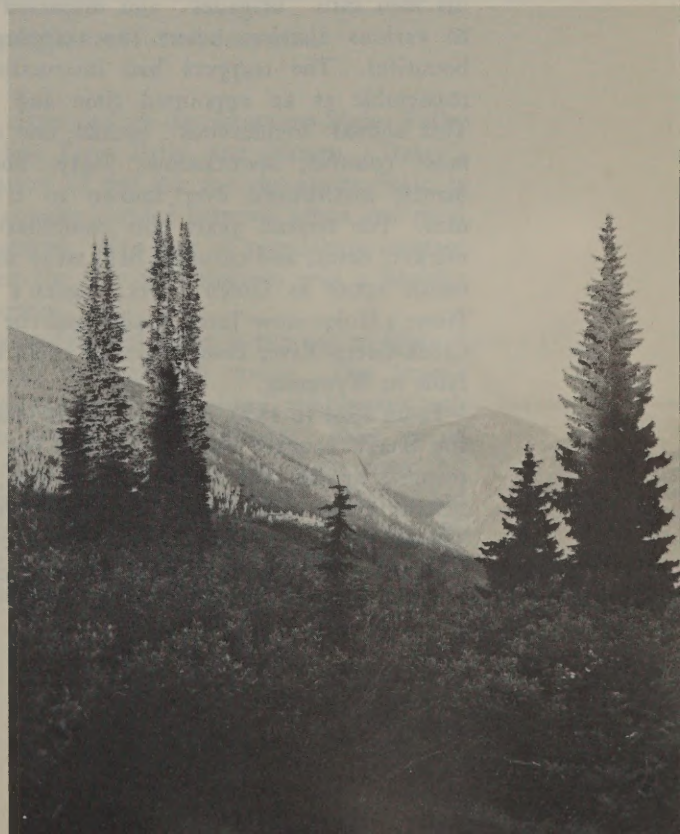
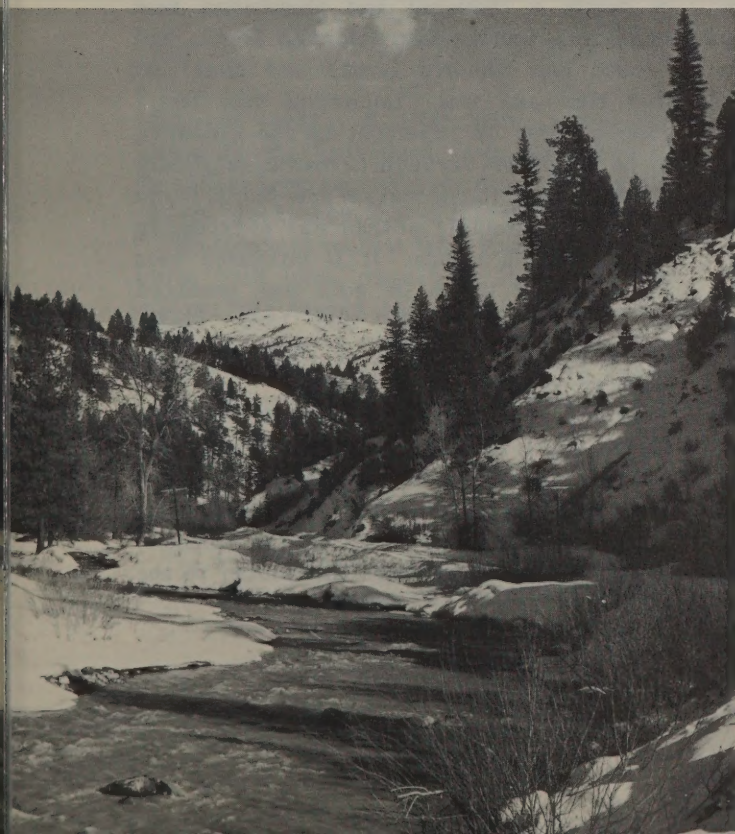
Although Lewis and Clark did not live long

enough to hear of the State of Idaho, they were aware that their exploration was the starting point for the development of a new commonwealth. By living with the Indians, especially the Snake and Nez Perce, with whom they had established friendly relations essential to the later development of Idaho, they had prepared the way for the St. Louis fur trade to reach up the Missouri into this heretofore virgin territory.

A succession of explorers, fur traders, missionaries, prospectors, and immigrants laid the foundations for Idaho's subsequent development as a mining commonwealth. The sequence has a close continuity: explorers (often fur traders in their own right) spied out the land for trappers and traders, fur hunters soon were followed by missionaries, and later by prospectors, who in turn started the Idaho gold rush.

Early Fur Trade

First of the fur traders to figure importantly in the history of Idaho was David Thompson, a London-educated Welshman who had trained himself as a surveyor in the service of the Hudson's Bay Company. Dissatisfied with that company's lack of enthusiasm for mapping the vast wilderness, Thompson later joined Hudson's arch-rival, the Scotch-Canadian North West



Company. He came into Idaho from Canada by way of the Kootenai River in 1808 and began fur trading with the Flathead and Kootenai Indians.

In the fall of 1809 Thompson and his men erected on Lake Pend Oreille "a strong Log building for the Goods and Furs, and for trading with Natives." With some tents and a lodge, this fur trade post was known as Kullyspell (Kalispell) House. It was the earliest fort in the Pacific Northwest of the United States, and the first house built by a white man in Idaho.

During the first year that Thompson occupied Kullyspell House, competitors seemed to flock in from all sides. Joseph Howes of the Hudson's Bay Company came out of Edmonton, Canada. And while John Jacob Astor was getting ready to send out his ill-fated Astorians, Manuel Liza's Missouri Company, under the direction of Major Andrew Henry, was on the move. A monument today marks the general location of Andrew Henry's short-lived Fort Henry, built in 1810 on the Snake River near the present town of Saint Anthony.

The first successful commercial enterprise in what is now Idaho was inaugurated on Green River, in July 1824, by General William Ashley of the Rocky Mountain Fur Company. Ashley's operation was unique. Rather than establish a permanent trading post, he divided his men into "brigades" and dispersed them to various districts where the trapping was bountiful. The trappers had instructions to reassemble at an appointed time and place. This annual "rendezvous" became one of the most colorful, spontaneous, lusty, and romantic institutions ever known to civilized men. For sixteen years this combination of market, fiesta, and carousal held sway in such exotic spots as Green River, Ogden's Hole, Pierre's Hole—now Teton Basin—and the Horse Creek-Green River country south of Jackson's Hole in Wyoming.

From 1824 to 1830, rivalry for ascendancy in the Snake country of Idaho pitted St. Louis trappers against the London fur traders, with neither group able to gain a clear-cut victory. The intense competition turned the Snake River Valley into a beaver desert, past which the

St. Louis trappers could not economically afford to go. By 1840 the fur trade in Idaho nearly had reached its end. Hat fashions changed by 1832 with silk making severe inroads upon beaver and beaver prices declining sharply. This greatly restricted the activities of the fur hunters.

Missionaries and passing immigrants, not fur trappers, were destined to dominate the history of Idaho during the two decades after 1840. Included in the Oregon territory in 1848, Idaho had its boundaries changed five times before it entered the Union.

Gold Rush Brings Settlement

The discovery of gold in the Clearwater country in 1860 shattered all reasonable prophecy concerning the future of Idaho. Rich strikes followed in the Salmon River and Florence areas, in Boise Basin, in the Owyhee terrain, in the Coeur d'Alenes, and elsewhere. The pattern of settlement was reversed by an influx of immigrants from the West, rather than the East. As fortune hunters backtracked from California and Oregon, Idaho's permanent settlement was advanced by half a century.

Idaho's history shifted from trapping to boomtowns. Elk City was founded in August 1861 and within three weeks had a population of nearly a thousand and twenty-five new buildings. Orofino City, close to Pierce, had "about four hundred houses and tents" at that time and was "improving very fast." Supplies came by steamboat up the Columbia to be distributed through Lewiston, originally a city of tents, to the various new North Idaho communities, rapidly on their way to becoming typical mining camps. It is estimated that \$53.4 million worth of gold was produced in Idaho between 1860 and 1866. Idaho, including most of what is now Montana, achieved territorial status in 1863.

During the years 1880-82 the Northern Pacific laid its rails across the Idaho Panhandle, and the Union Pacific crossed the southern part of the State in 1882-4. The railroads, bringing a new influx of settlers and ranchers, marked the transition from the frontier to the



Idaho's 1½ million head of cattle form an important part of the State's livestock industry.

Idaho of today. In 1890 Idaho joined the Union as the forty-third State and most of its valleys were rapidly homesteaded by sturdy groups, chiefly from the Middle Western States.

The men and women who blazed the Idaho trails, built forts, opened the mines, and developed the forests and fields had zest and vitality to match a rugged, hearty land. They worked to develop a State worthy of its motto "Esto Perpetua" (May you last forever).

Idaho Today

The State Capitol is in Boise, Idaho's largest city, with a population of over 55,000. Other

major cities include fast-growing Idaho Falls, Pocatello, Twin Falls, and Nampa. Today's population of 667,191 for the entire State is about equally divided between urban and rural communities. The rate of population increase between the last two censuses was a healthy 13.4 percent.

An abundance of water is the key to Idaho's prosperity and growth today. The State's leading industry is agriculture, with recent cash receipts totalling \$446 million. Most of its great variety of crops comes from some 3.2 million acres of irrigated cropland. Timber and tourism vie for second place in sustaining the economy in the amount of \$150 million each, with mining, at \$84.8 million, in third place.



The Lost River Mountain Range in east-central Idaho is one of the 22 ranges that cross the State. High above the snow-rimmed crags juts the 12,655-foot Borah Peak.

Physical Characteristics

Idaho is an L-shaped State occupying 83,557 square miles of timbered mountains and sweeping plains.

Generally sloping westward from the continental divide to the Columbia River drainage system, Idaho changes from forested, glacially carved mountains in the north, to prairies and deep canyons in the Salmon and Snake Rivers regions, to the southern Snake River plain where one of the Nation's largest irrigated areas has been developed.

Idaho has an average annual temperature of 50 degrees. Its elevation ranges from 710 feet



above sea level in the Clearwater Valley, near Lewiston, to 12,655-feet atop Mount Borah in the Sawtooth Range. Sharp differences in climate occur: one area may have little or no snow while a short distance away tall evergreens are buried under snow. Fruit trees may be blooming in southern valleys while less than a hundred miles away snow hangs heavily on spruce and pine.

The Snake River is Idaho's most important stream. Rising in Yellowstone National Park, the Snake River (called Mad River by the French voyageurs) flows for 1,000 miles in an arc-like course through southern Idaho; much of it is in a deep gorge. Near the Idaho-Oregon line, in the Seven Devils Range, the gorge becomes the deepest on the North American continent.

Most of the State is in the Snake River watershed, which in turn is part of the Columbia

watershed. Important tributaries of the Snake are the Boise, Clearwater, Salmon, Payette, Big Wood, and Bruneau Rivers. Southern Idaho's principal waters are collected in the Snake River and flow through Lewiston, discharging into the Columbia River near Pasco, Washington. Lewiston is sometimes called Idaho's seaport since boats come up the Columbia and Snake Rivers to dock at its wharves.

To the north of the Snake River lies a desolate and forbidding area some 3,400 square miles in extent. It is characterized by vents and cones of recently extinct volcanoes. From the craters came the twisted, ropelike flows of lava which give the region an unreal and weird appearance. Numerous streams, even some rivers, disappear into the porous volcanic rocks; the water follows underground routes

and reappears later in hundreds of springs and as outpourings from the walls of the Snake River Gorge.

The traveler crossing Idaho on the East-West Highway finds long stretches of arid country and broad sagebrush-covered tablelands, but the rugged timbered Rocky Mountains cover the northern three-fourths of the State. Seen by the more adventuresome are the untold numbers of high mountain lakes, many yet unexplored. The State has a number of large lakes, including Pend Oreille, beautiful Coeur d'Alene, Priest, Henry, and Bear—the latter straddling the Idaho-Utah State line.

Twenty-two mountain ranges crisscross the State. Among these are the Bitterroot, Lost River, Owyhee, Beaverhead, Lemhi, Clearwater, Centennial, Caribou, and Seven Devils Ranges.

In the Salmon River and Middle Fork areas lies one of the Nation's greatest wilderness regions — so great, in fact, that parts of it still have not been explored. And in these areas Idaho has a wealth of fish and wildlife.

Geologic History

Idaho's long, complex geologic history extends back into the Precambrian era—much more than a billion years ago—when most of the layered rocks that form the mountains of the northern one-third of the State were deposited in shallow seas. These rocks are mainly quartzite and slate, but in a few places they include cauliflower-shaped deposits of limestone and sandstone that were formed by colonies of algae. These algae "reefs" are among the earliest fossil records of life.

About half a billion years ago the pattern of deposition changed in Idaho. Repeated advances and withdrawals of seas over the next 400 million years are recorded by deposits of limestone, dolomite, sandstone, shale, and other layered rocks. Many of these rocks contain fossilized remains of salt water shellfish and other animals. Such fossil-rich rocks are common in the east-central and southern parts of the State and occur in a few places in the west-central and northern parts. Their

absence elsewhere in the State is not yet fully understood; either the remains were removed by erosion during the millions of intervening years, or they were not deposited in areas high enough to avoid flooding by these ancient seas. Near the close of this great period of flooding, more than 200 million years ago, great accumulations of phosphate rock were deposited in southeastern Idaho. Also at this time, volcanoes were active farther west, forecasting the extensive volcanic eruptions that were to come later throughout much of southern Idaho.

During the next 150 million years, most of Idaho stood above the sea, and the rocks deposited by the earlier seas were eroded by streams and winds. But even during this period of general emergence, thick layers of fossiliferous sedimentary rocks were deposited in seaways that persisted in the southeastern part of the State, as well as in the far western part where volcanoes intermittently erupted lavas that were added to the pile of layered rocks.

About 100 million years ago an enormous mass of molten granite was injected into the layered rocks of central Idaho to form the great Idaho batholith, one of the largest masses of granite in the world. Erosion has now exposed this granite over an area of about 16,000 square miles in a belt more than 80 miles wide, extending from the Snake River Plain to the St. Joe River.

Rocks deposited since the period of granite intrusion have been mostly volcanic ones related to several episodes of volcanic activity: lavas and volcanic ash that were erupted about 40 million years ago in central Idaho; the great outpouring of lavas of the Columbia Plateau in the western part of the State about 15 million years ago; and the rhyolite and basalt lavas of the Snake River Plain. These latter range in age from as much as 1 million years to as little as 300 years for some of the strikingly fresh, unchanged lava flows and volcanic craters, such as those in the amazing Craters of the Moon National Monument.

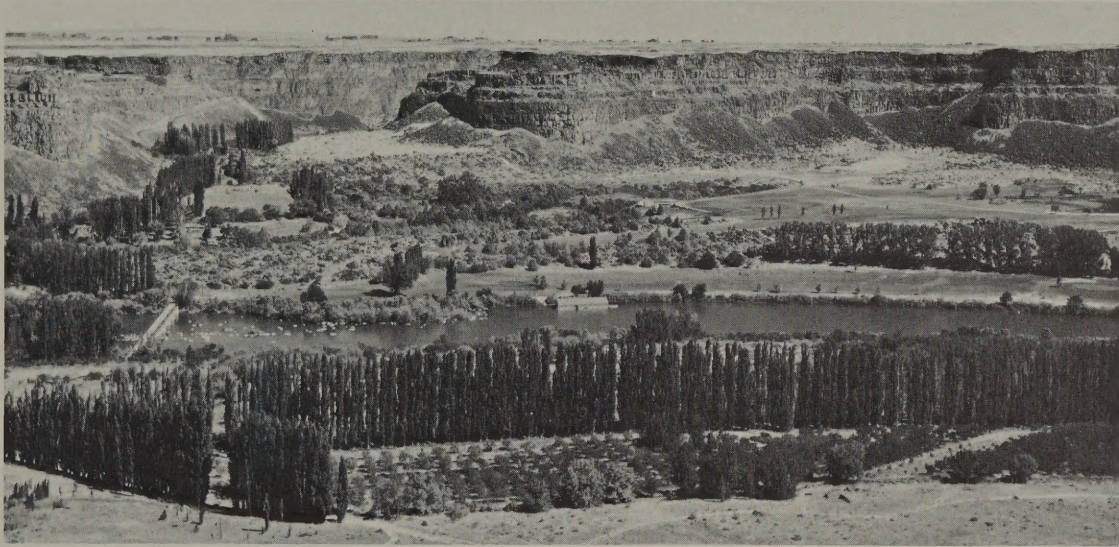
At the time of the lava eruptions on the Snake River Plain in the south, many of the mountain ranges to the north were repeatedly sheathed in

ice and snow. Glacial deposits of boulders, gravel, and sand record at least three periods of ice advance, and the glaciers that formed during these times helped carve the mountains into the present precipitous forms. The last period of widespread glaciation ended about 10,000 years ago, although small glaciers probably lingered in a few places until about 100 years ago and some ice fields persist to the present time.

Several times during their long complex history, the rocks have been uplifted, tilted,

crumpled, or broken apart so that only the most recent lava flows remain undeformed.

Such is the basic framework of the geology of Idaho. On it are hung the many details of local geology that control the great variety of mountains, valleys, and plains, the flow of streams both great and small, the distribution of plant and animal life, the routes of early explorers and travelers and the present locations of cities, and the locations of the ore deposits and industrial raw materials so important to Idaho's economy.

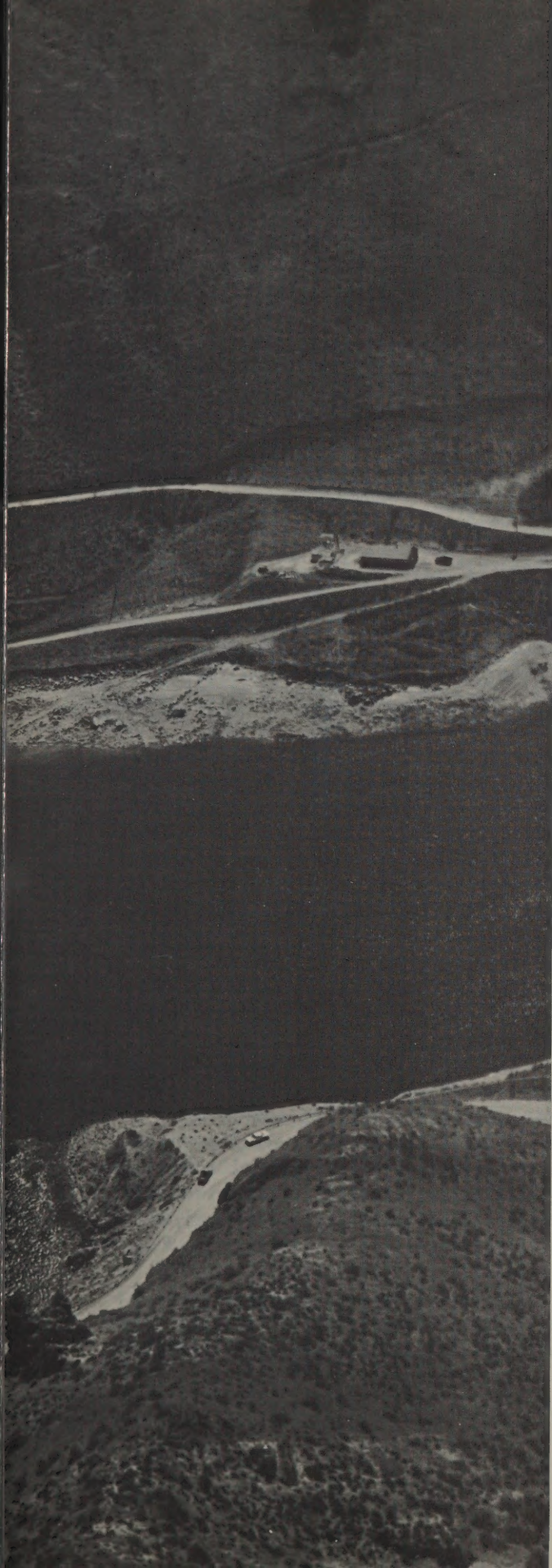


Like a general in a full dress parade, the Snake River moves slowly past a rigid column of Lombardy Poplars (above).

(Below) Crevices in Craters of the Moon National Monument attest to the volcanic spasms that once rocked our planet.







Water and Power

Like air, water is priceless. Life could not exist without it. Without the harnessed flow of the Snake River and its larger tributaries, southern Idaho would today be as it was in the 1880's—a land sparsely populated by a few mining communities, with scattered livestock ranches and a few lonely towns.

The record shows that water runoff per acre in Idaho is higher than the United States average, excluding Hawaii and Alaska. The average yearly flow in Idaho streams is 35 million acre-feet, enough to cover the State to a depth of nearly 8 inches. The average rate of flow is 58,000 cubic feet per second or 37 billion gallons daily.

Average annual precipitation varies throughout the State; over the northern section it totals 20 inches, over the southern section less than 12 inches. Most of this falls during the non-growing season.

Principal uses of water in Idaho are for irrigation and power. Municipal and industrial needs are increasing but as yet consume a relatively small proportion of the supply; industrial use is increasing but is not yet a serious competitor.

Growth of Irrigation

Missionaries and Mormon pioneers began irrigating their fields and gardens as early as the 1840's. Development of irrigated agriculture built an enduring economy for Idaho.

The first irrigation developments consisted of simple diversion works and short ditches. They

With surely a majestic air, Arrowrock Dam sweeps down across the Boise River and harnesses its flow to meet the ever expanding needs of a strong and growing State.

were followed by more complex systems, and later by the multiple-purpose projects consisting of large storage reservoirs impounded behind high dams, relift stations, and power plants. Many of the projects also provided recreation facilities.

Reclamation of desert lands by irrigation has always been one of the most prominent features of the growth of the State. More than 2.5 million Idaho acres are presently irrigated either from surface streams or by pumping underground water. This reclaimed area is larger than the States of Delaware and Rhode Island combined. On these farms are grown the famous Idaho potatoes and high quality fruit, sugar beets, and a variety of forage and seed crops.

Irrigation of so vast a region requires annual diversion of an estimated 17 million acre-feet of water from Idaho streams. Water measured in acre-feet refers to the quantity which will cover one acre to a depth of one foot. Idaho crops use an estimated 6 million acre-feet. The remaining 11½ million acre-feet, unconsumed, finds its way back to the rivers or ground-water reservoirs.

Particularly impressive is the development of the great agricultural empire of southern Idaho. The scope and prosperity of agricultural Idaho reveals the ingenuity of her farm citizens in their management of the water accumulated each year from melting snow.

The Snake River and its tributaries provide the major source of water for irrigation in the agricultural areas of southern Idaho. From its source in Wyoming the river flows more than 150 miles before entering the vast Snake River Plain near Heise, Idaho. From Heise to Milner Dam there are about 1,400,000 acres irrigated by surface and ground water. Presently, nine reservoirs with a combined capacity of 2,631,725 acre-feet, of which 2,307,225 acre-feet are considered active, have been constructed to serve this area. In addition to irrigation development using surface waters, nearly 400,000 acres are irrigated in this area by the pumping of ground water.

Along with the population growth and the irrigation development in Idaho came the modernization of home, farm, and industry by elec-

trification. Most rivers in the State begin at the snowfields at high elevations and drop thousands of feet over waterfalls, rapids, and riffles as they race toward the sea. More and more dams are being built to store the spring floods and to harness the energy for electric power.

A few generations ago, only a few small power plants utilized Idaho water power for grist mills or in concentration plants at mines. Now, 50 completed hydroelectric projects develop over 1 million kilowatts—more than enough electricity, if channeled exclusively to that use, to provide power for 3½ million modern homes, or about all of the residences in California. Homes, farms, pumping plants, and a variety of industries in Idaho and many other parts of the Northwest are served with power from Idaho.

Idaho now ranks about seventh in the Nation in hydroelectric power developed, and about fourth in hydroelectric resource potential. Less than 10 percent of the State's total hydroelectric potential of 11,729,420 kilowatts is now realized.

Six completed Federal multipurpose projects of the Columbia River power system in Idaho have an installed capacity of 206,500 kilowatts. These are the Albeni Falls, Minidoka, Boise Diversion, Black Canyon, Anderson Ranch, and Palisades projects. They represent about 20 percent of Idaho's present hydroelectric capacity. The Dworshak (Bruces Eddy) Project on the North Fork Clearwater River is under construction and will add 300,000 kilowatts. The Asotin Project, on the Snake River between Idaho and Washington, is authorized and will add 270,000 kilowatts to the Federal system when constructed.

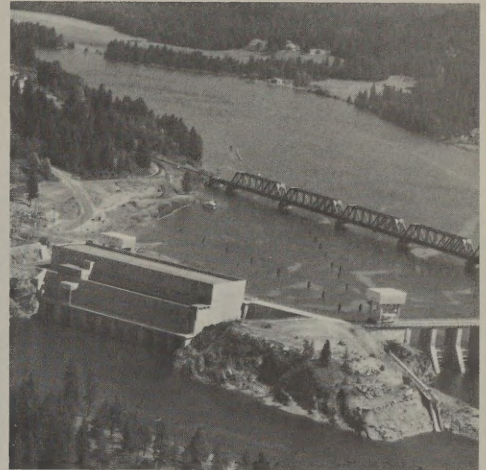
There are 44 existing non-Federal hydroelectric plants in Idaho with an installed capacity of 959,000 kilowatts. Hells Canyon Project on the Snake River between Idaho and Oregon, now under construction, will add one half of its 369,900 kilowatts to Idaho's total power development when completed. Nine privately-owned fuel-fired plants have a total capacity of 29,430 kilowatts.

Sizable as the present developments are, engineers and planners envision an even more intensive use of water for power. Plans being con-



(Above left) Irrigation water from the Minidoka Project is siphoned off from these laterals into the thirsty soil.

(Below) Federal powerplants on the Snake and Pend Oreille River help generate the hydropower that propels the wheels of the Idaho economy.



sidered would increase the power output by 4 million kilowatts for the expanding economy of the West. Such an expansion would require broadened knowledge about many characteristics of the water supply in the State.

Underground Reservoirs

Large and productive reservoirs of underground water add significantly to the amount of water available for use. The basalt of the Snake River Plain and the glacial outwash of the Rathdrum Prairie-Spokane Valley are notable water-bearing formations with high potential for yielding good quality water. In addition, alluvium underlying many valleys of the State contains large supplies of ground water.

Amazing sights both to the pioneers and to people today are the great springs that break out on the north side of the Snake River Canyon. The biggest are the famous Thousand Springs in the Hagerman Valley, but there are many other large springs along the river for a distance

of 40 miles. The water that pours daily from the springs would cover 20 square miles a foot deep, and 7,300 square miles in a year.

Continuing studies are uncovering more and more knowledge about the capacity and workings of the underground reservoir in Idaho. Like other natural resources, it is not inexhaustible. However, man's actions, far from depleting this reservoir, have tended for 50 years to put more water into it than nature did. Much of the water from Henrys Fork and the Snake River, applied to hundreds of thousands of acres of irrigated land, sank below plant roots and added to the underground supplies—so much that half again more water spills from the reservoir through the great springs of the Snake River Canyon now than before large-scale irrigation began in the early 1900's.

The underground reservoir contains considerably more water than all the surface-water reservoirs on Henrys Fork and the Snake River in the same drainage basin. By studies and constant vigilance in measuring water levels and



stream flows, the underground supplies can be managed as efficiently as surface reservoirs. Studies and preliminary plans are already underway for diverting into underground storage the surplus winter streamflow that hitherto has escaped down the Snake River and disappeared into the sea.

Thermal Water

Hot water is an abundant resource found in many parts of Idaho. The Indians knew the hot springs and sometimes bathed in them; the pioneers enjoyed them so much in the early days when plentiful hot water was a rarity around the home that many resorts grew up at hot springs. Now most of these resorts are defunct, but increased leisure time and vacations have reawakened interest in developing the hot springs as resorts. In addition to providing hot baths, the hot waters are so abundant in Idaho that they may eventually be developed for space heating and perhaps even transformed into power.

Hazards of Pollution

The importance of clear, potable water for recreation and other uses cannot be over emphasized. When pollution alters the biological balance of the streams, choice fresh-water fish such as trout, bass, and catfish are often replaced by "trash" fish or no fish at all. Polluted waters are likewise undesirable for boating and swimming.

Hazards of pollution are minimal in many Idaho reservoirs and streams which are located in the lightly populated mountains upstream from the heavily populated centers. However, considerable pollution occurs on the lower reaches of the rivers of the State. Considerable public support is developing to provide more plants to treat sewage, waste products from food processing plants, and wastes from timber and

paper mills. Such action aims at maintaining or improving the quality of the water throughout the State.

The major streams in Idaho provide water of acceptable quality for irrigation and most other uses. Concentrations of dissolved salts generally are small except for a few drains and springs, generally near the lower ends of the basins.

While Idaho now has no critical problems with the quality of its underground water, vigilance is necessary. The fraction of irrigation water which enters the ground-water table carries with it large amounts of mineral matter dissolved from the soil. Thus, the ground water under irrigated lands tends to get harder and harder—in many places in Idaho, it is already somewhat objectionable for household uses. In areas where circulation of underground water is poor and rates of replenishment slow, the water eventually could become too poor in quality for irrigation.

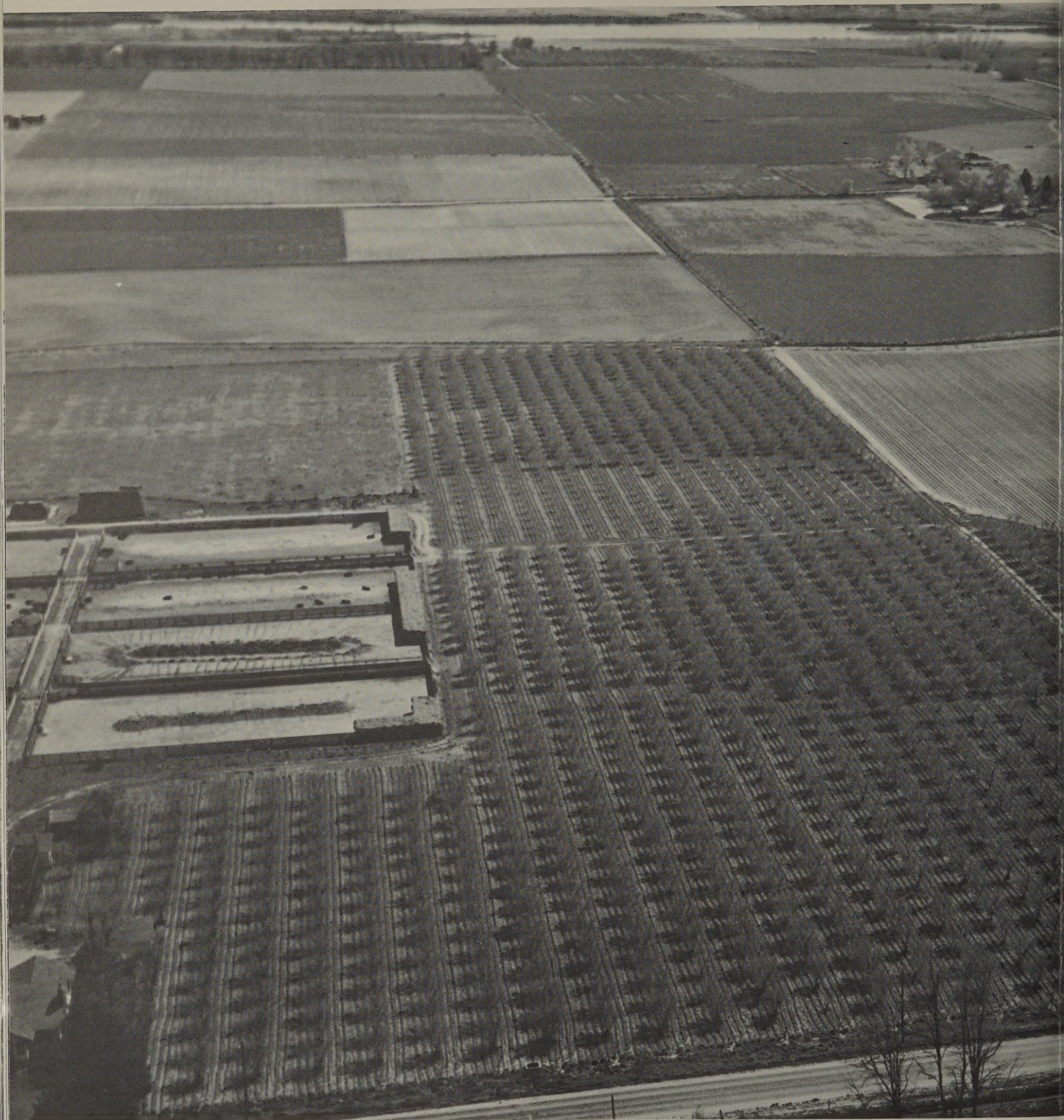
Future of Water Resources

The future of Idaho is inalterably linked to her water resources, which today offer a wealth of opportunities for further development and utilization. As the demand for irrigated land increases, for example, more water can be diverted to the millions of acres of arable land in Idaho which are near dependable water supplies. Present plans propose irrigation of more than a million acres of land along the main stem of the Snake River. The variety of food crops which can be raised on irrigated lands exceeds what would be possible with most other types of farming.

Development of hydroelectric power offers many possibilities for Idaho. Potential power development will exceed the output of existing installations.

The development of water resources will be more complex and costly than at present. Additional hydrologic information will be required. Continued collection and interpretation of basic water information will aid substantially the orderly development of this great resource heritage.

The spring snow melt swells many of Idaho's creeks into miniature torrents. Although some flooding does occur, flood control works succeed in keeping it to a minimum.



Land and Forests

The settlement which followed Idaho's gold rush brought cattle and sheep men to the rangelands and homesteaders into the valleys. Railroads and wagon roads pushing across the State drew industry and settlement to Idaho's vast forests.

With the Carey Act of 1894 and the Reclamation Act of 1902, Idaho's wealth of water could be conserved and channeled, via reservoirs and diversion dams, for irrigation. Cities such as Twin Falls, Burley, and Rupert, along the Snake River Valley in southern Idaho, developed rapidly as the sagebrush and cactus territory surrounding them was transformed into farmland.

Today, the bold era of the traders, trappers, and gold seekers has passed. But valuable forests and ranges still contribute greatly to the economy of the State.

Of Idaho's total area (almost 53 million acres) more than two-thirds is in Federal ownership. About 20 million acres are administered by the Department of Agriculture's Forest Service; another 12 million acres, by the Department of the Interior's Bureau of Land Management. The Department of Interior's Bureau of Reclamation administers about 615,000 acres in Idaho; the National Park Service, about 85,000 acres.

Irrigated Agriculture

Irrigation has transformed more than 2.5 million acres of semiarid land into some of the State's most productive farms. In total acreage irrigated, Idaho ranks fourth in the United States, following California, Texas, and Colorado. Its irrigated areas contribute substantially to the economy of Idaho, making agriculture first among the State's sources of income

Idaho ranks fourth among the States in total irrigated land. These orchards use water from the Boise Project.



With rangeland covering about two-fifths of the State, Idaho's livestock industry is today a multimillion-dollar business.

Among the principal irrigated farm regions of Idaho is the upper Snake River Valley in eastern Idaho from Pocatello to the west entrance of Yellowstone National Park. Famous for its potato crops, this reclaimed desert area also produces sugar beets, hay, and peas.

American Falls, the center of a huge dry-farming wheat belt in southern Idaho, is also gateway to another irrigated area reaching westward along the Snake River for almost 200 miles. Other major reclaimed areas are the Boise and Payette Valleys, important for fruit production; the lower Snake River Valley; and northern Idaho's Kootenai Valley where deep silt deposits and irrigation combine to provide excellent farm land.

Idaho's total agricultural land, including irrigated areas, dryland farms, and private grazing lands, totals 15.2 million acres, including 10 million acres of private grazing land.

Major Idaho crops in order of dollar value are potatoes, wheat, hay, drybeans, sugar beets, barley, seed crops, dry peas, fruits and berries, oats, corn, clover, and vegetables. Idaho ranks first in the United States in potato production. Cash receipts from all farm marketings in a recent year totaled \$446 million.

Range for Livestock

In the early days of its settlement, Idaho's millions of acres were open to grazing. Shortly after the turn of the century, with the discovery of summer-fallowing methods, many grazing

lands where rainfall totaled 12 inches or more annually became dry-farm wheat-producing regions.

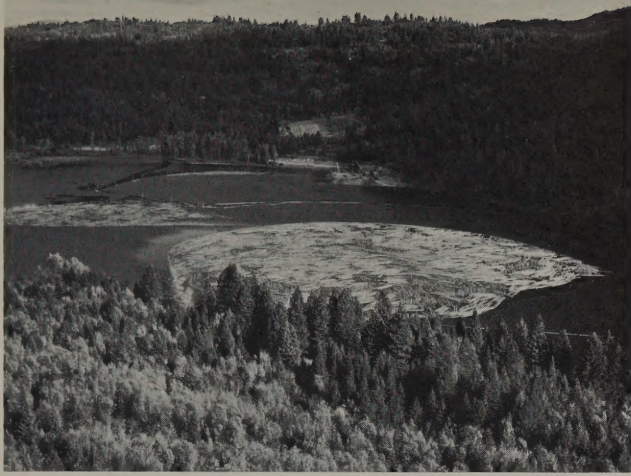
Today, about 10 million acres of private grazing land are used either for pasture or for production of livestock feed. An additional 11 million acres of federally owned grazing lands are administered by the Interior Department's Bureau of Land Management; the Department of Agriculture's Forest Service also administers grazing areas within national forests.

In a recent year, the value of marketings from livestock and livestock products on Idaho farms and ranches totaled \$195 million. Livestock in the State include 1.5 million cattle and calves (including 371,000 cows and heifers kept for milk); 1.1 million sheep and lambs; 1.5 million chickens. Among the 11 Far Western States, Idaho ranks third in the number of dairy cattle, exceeded only by California and Washington.

Generally, livestock raising in Idaho is favored by nearness of rangeland to irrigated lands, which produce hay and other feed to supplement range feed between grazing seasons. Elmore County in southwestern Idaho is a major grazing area of the State. The chief dairying section lies in valleys between Boise and the Oregon border.

Forested Acres

Of Idaho's original 23 million acres of forests, about 22 million acres, $\frac{3}{4}$ of the State's total area, are still covered by timber. About 19 million acres of these vast evergreen forests are administered by the Department of Agriculture's



Idaho's valuable evergreen forests and rich irrigated farmlands form a basis for a strong and prospering economy.

Forest Service. The Department of the Interior's Bureau of Land Management administers another 689,000 forested acres, while about 3 million acres are in private ownership.

For volume of standing sawtimber, Idaho ranks fifth in the United States, following Oregon, Washington, California, and Alaska. Idaho's nearly 115 billion board feet of standing sawtimber comprise more than 5 percent of the Nation's total. Predominant species include the Western white pine, official State tree. Some of the largest and finest stands of white pine in the country are found in the Kaniksu, Coeur d'Alene, St. Joe, and Clearwater National Forests of northern Idaho.

Other important species are ponderosa pine, Douglas fir, western larch, Engelmann's spruce, lodgepole pine, and white fir. Non-evergreens (chiefly cottonwoods) are confined mostly to stream banks in Idaho.

Idaho's lumber industry is a mainstay of the State's economy. Valuable commercial forests cover about 15.8 million acres, half of which are located in the 10 counties of northern Idaho (about one-third of Idaho's forests are too rough or remote for logging, or have trees presently unusable for commercial operation). About 21,000 employees in timber-based activities earn almost \$50 million a year, accounting for 36 percent of the State's total manufacturing payroll.

Importance of timber to Idaho's economy can be seen in other figures for a recent year: estimated value of sawlogs, veneer logs, pulpwood, posts, piling, and other raw products—\$66 mil-

lion; estimated value of products manufactured at mills, including lumber, wood pulp, veneer, excelsior, and others—\$160 million.

Both volume of sawtimber and wood growth have increased spectacularly in Idaho in recent years. Latest official inventories show an increase of more than 88 percent in volume of standing live sawtimber since 1945—from 61 billion board feet to 115 billion board feet. This increase was made during 15 years when the log harvest also increased.

Net annual growth of forest growing stock (wood in all commercial species 5 inches and over in diameter, measured 4½ feet above ground) is 469 million cubic feet, up 55 percent from 1945.

Protection of forests and woodlands from the ravages of fire and pests is a vitally important task in Idaho. The State is the birthplace of cooperative forest protection from fire. Methods of fire prevention and detection are largely mechanized with airplanes and radios for communication.

Insects and diseases annually cause heavy losses of timber. Though thousands of dollars are spent yearly by industry, State, and Federal agencies, for studies, the need for more research and control remains great.

In addition to their commercial value, Idaho forests are important as watersheds, grazing and mining areas, wildlife habitat, and for recreational uses. Better road systems open excellent hunting, fishing, camping, and scenic areas to many recreationists yearly.



Mineral Resources

Idaho leads the Nation in mining silver, is second in mining lead and zinc, and third in mining phosphate rock. Great quantities of sand and gravel, cement, and other minerals used as construction materials are also produced from its quarries and riverbed deposits.

Idaho in 1963 reached an all-time high of \$84.8 million in mineral production, a gain of \$2.2 million over the previous year. This was due principally to higher 1963 prices for silver and lead, since the mined Idaho tonnage of both metals actually declined.

Idaho has long produced more silver than the rest of the States combined—in fact, Wallace, in Shoshone County in the heart of the rich Coeur d'Alenes mining district, proudly proclaims itself to be the "Home of the Silver Dollar."

But the State's expanding mineral economy is no longer primarily extractive. Smelters, metal refineries, and other plants in Idaho have more than kept pace with mining operations, processing ores from neighboring States and from Provinces in nearby Canada along with those mined locally.

Minerals have been important in the Gem State since the Lewis and Clark Expedition when the early explorers noted that Indians came regularly to Idaho's streams and riverbeds to hunt beautiful pebbles.

Gem stones—garnet, agate, opal, sapphire, jasper, and opalized and petrified wood—are still found by "rockhounds" in at least seven counties. Garnet is so plentiful that it is mined commercially and sold throughout the West for use as an abrasive in sandblasting.

Gold was discovered in 1860 in what is now a section of Clearwater County. The influx of miners and settlers which followed led directly to the creation of the Idaho Territory three years later. A similar period of rapid growth—following a great silver discovery and rush in Shoshone County in 1884—helped Idaho become a State in 1890.

In the past the value of Idaho's total annual mineral production has fluctuated considerably, from as low as \$57 million to as high as over \$80 million in recent years. As a rule, Idaho ranks between 30th and 35th among the States as a

source of mineral wealth. Although each of Idaho's 44 counties has workable mineral deposits, Shoshone County is by far the leading producer, consistently accounting for over 60 percent of the State's total output value.

Five Major Metals

Seventeen underground mines in Shoshone County produce 99 percent of Idaho's silver, lead, and zinc, along with three-quarters of the gold and nine-tenths of the copper. These five metals are often found associated in the same "lodes" or veins; copper and gold are now obtained chiefly as byproducts or coproducts.

Over the past century, Idaho has produced an estimated \$2.3 billion worth of these five metals. Gold placer deposits were discovered first—by veterans of California's earlier gold rush—but lode mining was underway when the silver rush began in the 1880's and it has expanded since that time.

Shoshone County mines yield an average of more than 16 million troy ounces of silver annually, well over half the entire national output. The value of this production rose sharply in 1961 when the United States Treasury stopped selling coin silver from its vaults at the fixed price of 91 cents an ounce. Shoshone County lead production is exceeded only by that of Missouri and sometimes accounts for more than a fourth of total national output. In zinc production the county is second only to Tennessee, and contributes about an eighth of the national supply. Shoshone's Sunshine mine, a major silver pro-

ducer, is also the Nation's only producer of antimony, which is mined as a coproduct at the rate of some 600 tons a year.

Iron ore is mined in Benewah, Valley, and Washington Counties; some of it is shipped to steel mills and some is sold for use as an aggregate in concrete or for making cement. Uranium and vanadium are mined regularly, the latter sometimes as a coproduct of phosphate rock ores. Cadmium, columbium, mercury, tantalum, titanium, thorium, and tungsten are mined when market conditions make it profitable.

Important Nonmetals

Phosphate rock, used in making fertilizers and phosphoric acid, is the principal mineral product of four mines in Caribou, Bear Lake, and Bingham Counties. Their total production, the largest in the West, is exceeded only by Tennessee and Florida. Several plants in Idaho process this ore along with additional quantities shipped in from nearby States.

Sand and gravel, found in all counties is, second in value to phosphate rock. Cement, stone, perlite, and clays are all produced in economic quantities. Gypsum, barite, mica, and lime are mined or manufactured as economic conditions dictate.

Peat from Bannock County is sold as a soil conditioner, not as a fuel. Sulfuric acid is made in several plants for use in manufacturing fertilizers from phosphate rock ores or for use in metal refineries.

(Left) As a producer of phosphorus, this plant employs electric furnaces to refine phosphate rock brought from Idaho mines.

(Right) Specialists study surface outcroppings of iron ore to determine if the deposit can be mined economically.





Fish and Wildlife

Idaho, with vast forest and mountain areas, offers some of the best big-game hunting in the United States and a great variety of game birds. With its many lakes and miles of rivers and streams, the State also has abundant fish.

Big-Game Animals

Mule deer, most abundant of the State's big-game animals, and white-tailed deer are found in good numbers in the Chamberlain Basin and Selway River areas as well as along the Middle Fork of the Salmon River, the headwaters of the Payette and Boise Rivers, and in the Kaniksu and Priest River sections. Deer are found in all the National Forests, where in some instances

they receive year-round protection from hunting. The 10-year annual average of deer bagged in Idaho is 66,000.

Elk, another prime target of Idaho hunters, are most numerous in the Clearwater, Selway, Lochsa, and St. Joe River areas, and in the Chamberlain Basin. They occur also in the Seven Devils region, and on the Payette and Boise Rivers, where they usually are not hunted. About 15,000 elk are taken annually by hunters.

In Idaho's southern deserts and sagebrush-covered foothills a special season is usually held for antelope. Some 500 are usually taken during these limited hunts for which special permits are required.

Moose are found primarily in the Lochsa and



The distribution of a region's wildlife is determined by the terrain, climate, and food supply. Idaho's lakes give food and protection to mallard ducks, while her vast rangelands provide shelter for pronghorn kids and mule deer.

Selway River areas in the north and just west of Yellowstone National Park in the Island Park area. A limited kill (38 to 45) has been allowed in State controlled hunts in recent years.

Mountain goats and bighorn sheep are found chiefly in the Lochsa and Selway River areas, the Bitterroot Mountains, on the Middle Fork of the Salmon River, and between Priest Lake and Canada. Depletion of these species led to closing of the season for them some years back, but for the past few seasons limited hunts have been held in which small numbers of rams are taken by trophy hunters.

Black bears are fairly numerous in all the more northern of the National Forests, but only a small number of grizzly bears remains

today, mostly in the Selway area and north of Priest Lake. Grizzly bear may not be hunted.

Upland Game Birds

Idaho is blessed with a variety of upland game birds, some of which have been introduced from far distant parts of the world. Among its most important native species is the sage hen or sage grouse, a resident of the sagebrush areas of southeastern and southwestern Idaho. Nearly 25,000 sage hens are taken each year by Idaho hunters.

Other native grouse found in the State's forested mountains include the blue, the spruce, and the less common ruffed grouse. During a

recent year, hunters took 138,000 of these forest grouse in Idaho.

Four species of quail inhabit Idaho—valley, mountain, Gambel's and bobwhite. Hunting pressure has long been light on these birds. To divert attention from more heavily hunted species, the State recently lengthened the quail season with the result that more than 60,000 were taken by hunters.

The ring-necked pheasant, while not a native to the State, is the number one game bird in the hunters' bags. Over an 8-year period Idaho hunters have averaged nearly 545,000 ring-necks annually. Two State game farms produce pheasants. At Jerome about 11,000 chicks are hatched each year and sent to the Lapwai farm where they are reared to a size suitable for stocking Idaho areas.

To encourage Idaho hunters to go after the Hungarian and chukar partridges—both introduced birds which have been lightly hunted—the State recently lengthened the hunting season. The result was that nearly 100,000 chukars and some 47,500 "huns" were taken that year. Small numbers of chukars are still being raised at the Jerome Game Farm and released on suitable areas of the State. The Upper Salmon River drainage and the Snake River area between Weiser and Lewiston are two of the State's principal chukar areas.

Migratory Birds

Among the many species of birds that pass through the State on their migrations are ducks, Canada and snow geese, whistling swans, little and brown sandhill cranes, rails and shorebirds, bandtailed and mourning doves, and small insectivorous birds.

The mallard ranks as the second most important game bird in Idaho. The mourning dove is the third most popular game bird to Idaho hunters and in a recent year more than 15,000 dove hunters were licensed. The Canada goose is also highly rated by Idaho hunters, and the State is giving this species considerable attention in its waterfowl management programs. The State Department of Fish and Game reports that hunters have bagged an average of

nearly a half-million ducks and over 19,000 Canada geese during the past 8 years.

Fur Animals

Trappers in Idaho take a variety of fur animals each year, including valuable beaver, muskrat, mink, otter, and marten. During a recent season, nearly 5,000 beavers were trapped, yet the State beaver population was still under harvested. That same year more than 50,000 muskrats were trapped in Idaho marshes, as well as 2,000 mink. Other fur animals trapped in the State include fox, coyote, weasel, lynx, civet, badger, skunk, and nutria.

Mounting interest in cougar hunting in Idaho has proved far superior to the old bounty system in controlling this predator. During a recent year, 164 cougars were killed during the hunting season, about 80 percent by sportsmen especially seeking the big cat.

Great Variety of Fish in Lake and Stream

Idaho's 2,000 lakes and 35,000 miles of stream yield over 11 million trout and 4 million spiny-rayed fish each year. Primitive area streams and lakes still produce the popular native cutthroat trout, and many fishermen try for sturgeon in the Snake River.

Idaho's waters are rich in a variety of fish, including rainbow, brook, brown, golden, mackinaw, and Dolly Varden trout, and chinook, sockeye, and kokanee salmon. Other sport fish, such as whitefish, crappie, perch, large and smallmouth bass, channel catfish, bullheads, bluegill, pumpkinseed, and sunfish, are also abundant.

Sport fishermen of Idaho enjoy the benefits from large runs of migratory salmon and steelhead into the Snake River and its tributaries. Of particular importance to these species is the Middle Snake River area into which flow the Salmon and Clearwater River systems. The outstanding quality of the water in these streams, their gravel beds, and the relatively wild state of the headwater areas provide an especially suitable environment for the spawning and rearing of young salmon.

Fish which are spawned in the Middle Snake



Elk switch their diet in winter from grass to woody vegetation. Here one helps himself to a meal of twigs and bark.

River region in Idaho migrate downstream to the Columbia River and the Pacific Ocean where they mature and grow to large size. They are caught in the ocean in large numbers by commercial and sport fishermen. Upon reaching maturity, the adult fish migrate from the ocean to the Columbia and the Snake Rivers and eventually return to their place of birth where they lay the eggs to perpetuate the cycle. During the upstream migration as adults, they are caught by commercial and sport fishermen in the Columbia River and by sport fishermen along the Snake River and its tributaries.

The runs of salmon into the Salmon River are of particular importance to the State and the Northwest for both sport fishing and commercial fisheries. Under certain circumstances, the run of adult chinook and blue back (sockeye) salmon and steelhead in the Salmon River may total as many as 200,000 fish. In recent years, the runs of steelhead into the Clearwater River have been increasing.

For many years Idaho has been keeping track of the success of its chinook and steelhead fishermen through postal surveys. For the past several years, the chinook catch has varied from 26,000 to more than 40,000 fish, the steelhead catch from 51,000 to 62,000.

The State conducts a vigorous program to improve sport fishing on its reservoirs. In recent years the Fish and Game Department has eradicated the rough fish from a number of reservoirs including the Lost Valley, Blackfeet, Chesterfield, Magic Valley, Pleasantview, and Crowthers Reservoirs.

The Department of the Interior's Fish and Wildlife Service maintains a National Fish Hatchery at Hagerman, where about 3½ million trout are reared annually for sport fishing purposes. Hagerman Hatchery cooperates with the Idaho State Fish and Game Commission in planting and distributing this fish.

Indians and Their Resources

The earliest Indians of Idaho have left so few records that it is difficult to determine just what type of culture was theirs before the coming of the contemporary Indian. When Lewis and Clark made their way westward in 1805, they found five distinct Indian groups in the general region of what is now Idaho: the Kootenai, Coeur d'Alene, and Nez Perce in the northern portion, and the Shoshone and Northern Paiute in the southern part of the State.

Living conditions among the tribes in the north were similar to those of other northern Indians occupying lands west of the Continental Divide. These Indians fished the rivers for salmon which they dried and stored for summer use. They used mortars for pounding the bulbs of the camas lily, sego, bitterroot, chokecherries and service berries, and other edible plants. They hunted rabbits, antelope, and buffalo.

The Idaho Shoshone made great use of the flat grinding stone in preserving their plant foods, and they hunted in communal groups more often than other Idaho Indians. Their common game was the deer, the elk, mountain sheep, and the buffalo—a game animal abundant in the southern Idaho plains until around 1840.

In early days the Idaho Indians had no permanent band associations and no formal chiefs. They scattered into small groups in search of food and held their ceremonial dances mainly at the start of the food-gathering season. They did not have elaborate rituals; religion was an individual matter that did not concern the group.

When the Spaniards introduced the horse into their region, the Idaho Indians began to adopt the culture of the mounted Plains tribes, although they continued to use fish and root plants as staple foods and not merely as substitutes during times when game was scarce. In other ways, such as living habits, styles of dress, and political organization, life for the

Idaho Indians underwent considerable change. They began to live in teepees; to wear neatly tailored and ornamented skin clothing, with feathered headdresses a feature on festive occasions, to practice ceremonial dances of Plains origin; and, most important, to organize into bands under the leadership of trusted chieftains whose main duty was to head the eastbound buffalo-hunting expeditions. The chiefs were not autocratic; leadership could change at any time. The Indians quickly learned the economic value of horse breeding, and in fact, introduced the horse to the Crow and Blackfeet Indians of the Plains, who had not previously acquired these useful animals. Mounted hunting trips brought the Idaho tribes into contact with Indian bands they had never encountered before, not all of whom were friendly.

The Nez Perce Indians were impressed by the white man's culture. Their good friends, Lewis and Clark, sought and found teachers and missionaries for them. Christian doctrine was introduced to the Nez Perce in 1836 by a Presbyterian missionary, Henry Harmon Spalding, who also instructed the Indians in agriculture and industry. He soon settled a number of the Nez Perce Indian families on irrigated farms, which they cultivated with crude equipment acquired from the white men. The Northwest's earliest printing press, saw mill, and flour mill were owned by the Nez Perce Indians.

Jesuit missionaries arrived in 1842 among the Coeur d'Alene, taught the fundamentals of farming, and settled the Indians in a broad and fertile valley.

The prosperity of the Idaho Indians ended when a series of gold rushes brought overwhelming numbers of whites into the Indian country in the early 1860's. Until then, major conflicts between the Indians and whites were rare, but the Idaho gold rush resulted in the Snake War



This 79-year-old matriarch of Idaho's Nez Perce tribe wears a handsomely woven costume of shells, quills, and beads.

of 1866-68 which involved all of the southwestern Idaho tribes. Ensuing years of incidents brought two major outbreaks in 1877 and 1878, and the Indians were subsequently forced to settle on reservations and accept the unaccustomed restrictions of reservation life.

But even the reservation lands were not safe from the white man's demands, and battles flared again when the Nez Perce tried to protect their reservation from encroachment by white

stock raisers. In vain the great Nez Perce chiefs, Joseph and White Bird, led their people's resistance against the oppressors. Eventually the Nez Perce were sent to Kansas and Oklahoma, where they spent several unhappy years before being allowed to return to the Pacific Northwest.

In 1878 the Bannock (a name given to a people of the Northern Paiute Tribe who now reside at Fort Hall) took up arms in a major uprising, and the following year the Sheepeaters (the name of

certain Shoshone groups who were proficient in hunting mountain sheep) took part in a campaign that grew out of the Bannock War.

Under the force of the military and the pressure of increasing numbers of white settlers, the Indian uprisings gradually subsided and the Idaho tribes were settled on reservations to live in peace with their white neighbors. Little remains of the old culture and skills which enabled the Indians to live prosperously for centuries in Idaho's mountains and deserts.

Today the Indian population of Idaho stands at about 4,000. Nearly all of the Indians live on reservation lands which are held in trust for them by the Federal Government. The Department of the Interior's Bureau of Indian Affairs has two agency offices in Idaho: Fort Hall Agency, which has administrative supervision over the Fort Hall Reservation; and Northern Idaho Agency, which administers the Coeur d'Alene, Kootenai, and Nez Perce Reservations. Duck Valley Reservation, lying partly in Idaho and partly in Nevada, is administered by a Bureau agency office in Nevada. Over half of the reservation lives here.

Lands and Timber

About one and a half percent of the total area of Idaho is made up of Indian lands. The acreage is divided into lands owned by the tribes, lands owned by individual Indians, and lands owned by the Federal Government for use by the Indians. Of the five reservations in Idaho, Fort Hall, occupied by Shoshone-Bannock Indians, leads in size with 523,809 acres of tribal, allotted, and federally owned land. Fort Hall Reservation also has 640 acres of allotted land in Utah. Duck Valley Reservation, occupied by Shoshone and Paiute, is second in size, with 145,545 acres of tribal land in Idaho and 144,274 acres in Nevada. Nez Perce has a total of 90,708 acres of tribal and allotted lands; Coeur d'Alene totals 68,945 tribal, allotted, and Government-owned acres; and Kootenai has a total of 3,545 acres of allotted and Government-owned land.

The only irrigation project on reservation lands in Idaho is the Fort Hall Project of three



units containing 65,424 acres of irrigable lands. Forage and grain lead in crops grown on the Fort Hall Reservation, followed by potatoes and a small production of sugar beets. The acreage of farm lands utilized under this irrigation project is about equally divided between Indians and non-Indians who operate reservation lands under lease.

Range units used for grazing cover 378,660 acres on the Fort Hall Reservation and provide about five months grazing annually for some 14,500 cattle and 800 big game.

Duck Valley Reservation has 131,000 acres in Idaho used for grazing, mostly of the open grassland-sagebrush type. It will support 7,466 cattle on a seasonal basis.

Approximately two-thirds of the range use on the Fort Hall Reservation is by non-Indians on a permit basis, but on Duck Valley and other



Idaho reservations the grazing areas are used by tribal members' livestock.

Approximately 61,000 commercial forest acres of Indians lands support an estimated 116,000,000 board feet of timber. Coeur d'Alene Reservation leads in commercial timber volume with nearly 55 million board feet. Nearly 55,000 acres of Indian land within the State are presently classified as noncommercial forest land.

Income from timber on Idaho Indian lands has been relatively small. Poles, posts and fuelwood are the primary forest products.

Soil and Moisture Conservation

A total of 687,000 acres of Indian-owned lands in Idaho provide grazing, timber, farm land, and

An Indian crew is clearing away brush from the site of a land improvement project on the Nez Perce reservation.

land for other uses. In a recent year, these lands produced \$7,346,000.

The Department of the Interior's Bureau of Indian Affairs spends about \$200,000 a year for soil and moisture conservation work on Indian lands in Idaho. Over half of that amount goes into planning assistance to Indians for better use and development of their resources, and the remainder is used to give technical assistance in the application of conservation measures such as water distribution and development, leveling of irrigated lands, weed control, seeding and sodding, brush control, and fencing. In a recent year the land operators spent an additional \$1,081,000 for the application of conservation measures.



Outdoor Recreation



Nestled along this little cove near the Albeni Falls Dam is one of Idaho's loveliest camping areas. This Public Recreation Park also provides for swimming and boating.

Just as Idaho is rich in historical heritage and natural resources, it is also rich in scenic grandeur and outdoor recreation. In a recent year, recreation vied with timber as the State's second most important industry, contributing about \$150 million to the State's economy. Over 4 million out-of-State visitors vacation in Idaho.

The extensive mountain ranges provide excellent opportunities for camping, hunting, sightseeing, mountaineering, and winter sports. Several thousand streams and more than two thousand lakes plus private and Federal reservoirs throughout the State offer boating, swimming, fishing, and other recreation opportunities. Large populations of big game, upland birds, and waterfowl provide excellent hunting in most parts of the State. There are over two million acres of designated primitive and wild areas where many white-water rivers and extensive forests offer almost unlimited opportunities for wilderness recreation.

In Idaho's central wilderness portion are three Primitive areas, vast tracts of unspoiled forests and mountains set aside to be kept always for rugged, outdoor enjoyment. The raging white waters of the Salmon River course through this wilderness area of the State. The Salmon, called "The River of No Return" by the Indians, turned back Lewis and Clark and is still highly formidable to today's high powered explorers. Visitors can travel the Lewis and Clark route from the south to the Salmon along U.S. 93 and State Highway 28.

Information tables listing major Federal, State, and local recreation areas in Oregon and a location map appear at the end of this chapter. The acreage, type of visitor use, and outdoor activities available at the various parks, forests, and recreation sites can be found by reading across the table.

The River may be followed west from North Fork along a U.S. Forest Service road for about 50 miles and then the way forward is by jet-powered boats on the still hazardous wild currents. Historic monuments, including the birthplace of Sacajawea, famous Indian woman who assisted the Lewis and Clark Expedition, are in this area of Idaho.

The route of Lewis and Clark in north-central Idaho can now be travelled on the new Lewis and Clark Highway which crosses the midsection of the State through the Bitterroot Mountain Range to Lewiston. Here, along Lewis and Clark's pathway to the Pacific, is some of Idaho's most magnificent mountain scenery and also the rugged forest gateway to the Selway-Bitterroot Primitive area.

Hells Canyon of the Snake River, North America's deepest gorge, is easily reached from four directions. Hells Canyon is located in central Idaho along the western boundary of the State. In the south-central section of the State is famous Sun Valley, one of the nation's most highly developed winter sports resorts. From the luxuries of Sun Valley to the threshold of Idaho's primitive area is a scant half-hour drive. Another unusual attraction is Shoshone Falls—higher than Niagara—on the Snake River in southern Idaho.

National Monument and Park

The National Park Service administers spectacular Craters of the Moon National Monument and the 31,488-acre-portion of Yellowstone National Park located in Idaho.

The general appearance of Craters of the Moon—an 83-square mile part of south-central Idaho—suggests a telescopic view of the moon's surface. This area, one of the largest monuments under National Park Service administration, is one of the best examples of volcanism to be found anywhere. It consists of eruption fissures, volcanic cones, craters, lava flows, caves, and other volcanic phenomena. Geologically, this unique place came into being because of "The Rift," a series of fissures in the earth's crust. The panorama in this area at sunset has been described as "overwhelming," for at this

hour the fields of lava look utterly black and unreal.

A colorful variety of plant life, from primitive lichens to the white sego lily, Utah's State flower, can be found in the Craters of the Moon area. The fragile beauty of the many wild flowers contrasts with the awesome expanse of black lava, brilliant red and purple basaltic cinder cones, and acres of crags, pits, and domes.

Monument headquarters is located approximately 20 miles southwest of Arco, Idaho, and about 24 miles northeast of Carey, Idaho, along U.S. 20, 26, and 93A. The roads providing access to the monument cross some of the most rugged parts of the lava flows. Naturalists at the monument conduct tours and evening campfire programs. Overnight campsites are available, as well as a modern Visitor Center containing interesting volcanic and other exhibits.

The 31,488-acre Idaho section of Yellowstone National Park (the rest of the park lies in Wyoming and Montana) is a narrow strip of primitive, undeveloped terrain forming part of the park's western boundary. To the east of the strip lies the Wyoming section of the park, to the west the Targhee National Forest.

National Forests

To the intrepid mountain climber, the adventurous angler, the connoisseur of spectacular scenery, Idaho's 15 national forests covering over 20 million acres are a natural Mecca. In a recent year, over 4 million visits were made to these forests by recreationists who picnicked, hiked, camped, fished, or rode horseback. In addition, during the long snow season, some 250,000 skiers and tobogganists visited the 12 winter sports areas in Idaho's natural forests.

More than 2.6 million acres of the national forest land in Idaho is in the "wild" or "primitive" classification, including a 989,179 acre portion of the Selway-Bitterroot Wilderness Area. A new visitor center on Redfish Lake in the Sawtooth Primitive Area includes an exhibit room with displays of the geology, flora, and fauna of the area, and an observation room with a view across Redfish Lake and to the range of



These adventurous rapids runners on a float trip down the Salmon River are trying to get a snagged boat off a rock.

towering Sawtooth Mountains in the background.

A list of the national forests in Idaho, with headquarters, location, and outstanding attractions follows:

Bitterroot has headquarters in Hamilton, Mont. In the Idaho portion may be found 164,946 acres of the Selway-Bitterroot Wilderness Area referred to above. This is mountainous, heavily wooded land with an abundance of wildlife and superlative fishing in mountain streams.

Boise, with headquarters in the town of Boise, is high, rugged country including some 370,000 acres of wilderness. The headwaters of the Boise, Payette, and Salmon Rivers rise here, and the area is dotted with mountain lakes. Fishing is popular here and bear, elk, and deer abound for the hunter.

Cache has its headquarters in Logan, Utah. Mountains, rivers, canyons, and natural caves are among the area's attractions.

Caribou, with headquarters in Pocatello, is characterized by towering mountain ranges, divided by beautiful valleys. There are two winter sports areas in this forest.

Challis, with headquarters in Challis, features

the Lost River Range and Mount Borah, 12,655 feet, highest peak in Idaho. Within this Forest lie 75,000 acres of the Idaho Primitive Area and 7,900 acres of the Sawtooth Primitive Area. The Salmon River runs through much of this area and there are ample opportunities for hiking, pack trips, and wilderness boating.

Clearwater has its headquarters in Orofino. In this Forest are 265,580 acres of the gigantic Selway-Bitterroot Wilderness Area, the famous Lolo Trail, and part of the Lewis & Clark Highway. Streams offer excellent trout and salmon fishing; elk and deer are plentiful.

Coeur d'Alene has its headquarters in the town of the same name. Biggest attraction here is beautiful Coeur d'Alene Lake, with 104 miles of shoreline, the Coeur d'Alene River, and the rich Coeur d'Alene mining district where zinc, lead, and silver are mined.

Kaniksu has its headquarters in Sandpoint. The many lakes and streams here offer boating, fishing, and swimming. Attractions include the Roosevelt Ancient Grove of Cedars, Chimney Rock, the Cabinet Mountains Wild Area, and two winter sports areas.

Kootenai, mostly in Montana, has 48,851 of its

1,818,394 acres in Idaho with headquarters in Libby, Mont. This Forest is, like the Kaniksu, on the Canadian border and includes part of the Cabinet Mountains Wild Area, Kootenai Canyon, and the Fisher and Yaak Rivers. There are riding trails, black bear and deer hunting, and two swimming areas.

Nezperce has headquarters in Grangeville. Notable scenic areas include Seven Devils, and Hells Canyon where the bed of the Snake River lies 8,000 feet below the top of He Devil Mountain; Salmon River; Buffalo Hump; the Craggs and the Moose Creek and upper Selway River drainages. Over one-half million acres of the Forest are within the Selway-Bitterroot Wilderness Area.

Payette has its headquarters in McCall. The deep gorge (5,500 to 7,900 feet) of Hells Canyon lies in this Forest as well as in the Nezperce. The Payette includes the Payette Lakes Recreational Area, approximately half of the Idaho Primitive Area, and one ski area.

St. Joe has headquarters in St. Maries. Lake and stream fishing are famous in this Forest where visitors can see the St. Joe River drainage, St. Maries River Valley, canyon areas of Little North Fork of Clearwater River, the Clearwater-St. Joe Divide, and the Palouse River.

Salmon has headquarters in the town of Salmon. This Forest includes over 240,000 acres of the Idaho Primitive Area, as well as Big Horn Craggs, the historic Lewis and Clark Trail, the Salmon River and Panther Creek Forest Roads, and Salmon River Canyon. Recreation potential includes scenic and wilderness hiking, mountain climbing, boating on the "River of No Return" and Middlefork, horseback riding, and big-game hunting for deer, elk, big-horn sheep, mountain goat, bear, cougar, and antelope.

Sawtooth, with headquarters in Twin Falls, is divided into north and south sections by the Snake River plains. Its craggy mountain summits offer panoramic views of the Snake River Valley. The Forest encompasses a part of the Sawtooth Primitive Area, with its many alpine lakes, numerous fish and wildlife species, and the Sawtooth Mountains. Recreation oppor-

tunities include camp-grounds near the Redfish Visitor Center at Redfish Lake, saddle and pack trips, swimming, excellent hunting and fishing, and six winter sports areas including Magic Mountain, Mount Harrison, Soldier Creek, and famous Sun Valley.

Targhee, with headquarters in St. Anthony, includes the high headwaters of the Snake River, and extends in a great semicircle from the Grand Canyon of the Snake on the east to the slopes of the Little Lost River on the west. Among its attractions are Island Park, a popular recreation area; Cave Falls, Big Springs, Teton Canyon, and Bear Gulch, Moose Creek, and Pine Basin Winter Sports Areas.

Adjacent to the Caribou National Forest, and administered from the same forest headquarters in Pocatello, is the 47,599-acre Curlew National Grassland, where livestock and wildlife find shelter and forage.

Refuges Offer Recreation

The Department of the Interior's Bureau of Sport Fisheries and Wildlife manages three national wildlife refuges on 47,336 acres in Idaho which offer limited hunting and fishing. Camas National Wildlife Refuge permits waterfowl hunting; Deer Flat National Wildlife Refuge permits hunting for waterfowl, upland birds, and big game as conditions warrant; Minidoka National Wildlife Refuge offers good fishing. Over 196,500 visits were made to Deer Flat Refuge and 18,600 to Minidoka Refuge in a recent year. Boating is popular on both of these refuges. The national wildlife refuges are more fully described in the section on the Fish and Wildlife Service.

Water Sports—Fun and Variety

Lakes, reservoirs, and streams are among the most popular vacation and recreation spots in the arid and semiarid Western States. Boating is one of the West's most popular outdoor pastimes. The cool, clear, scenic mountain lakes and sparkling mountain streams attract visitors in great numbers.

Lucky Peak Reservoir, near Boise, had more

than 600,000 visitors the first nine months of 1963. It provided the equivalent of more than 7,000 days of water-skiing and boating during this period. Several natural lakes, including Payette Lake at McCall, Coeur d'Alene Lake at Coeur d'Alene and Pend Oreille Lake at Sandpoint are visited regularly by multitudes of people.

The U.S. Army Corps of Engineers manages two reservoir areas in Idaho of more than 100,000 acres which offer water-based recreation. The Corps of Engineers has constructed four recreation areas to meet the rapidly increasing recreational demand along Lake Pend Oreille. Swimming beaches, boat-launching ramps, and picnic and camping facilities are offered. The Bureau of Reclamation administers portions of three reservoir areas totaling 106,924 acres, including popular Palisades Reservoir which had over 200,000 visitors in a recent year. Responsive to growing public demands, development of recreational resources at many of the Bureau of Reclamation's reservoirs in Idaho will receive more attention in the future.

Fishing in the State's fresh-water streams, lakes, and reservoirs attracts many. In a recent

year, more than a quarter of a million fishing licenses were sold in the State.

Most Bureau of Reclamation reservoirs provide good fishing and some, such as Island Park Reservoir on the Minidoka Project, have attained national significance. Wildlife resources also have benefitted from Reclamation development. National wildlife refuges have been established at two reservoirs. Palisades and American Falls Reservoirs, Lake Lowell, and Lake Walcott provide important nesting and resting areas for migratory ducks and geese.

Activities on Indian Reservations

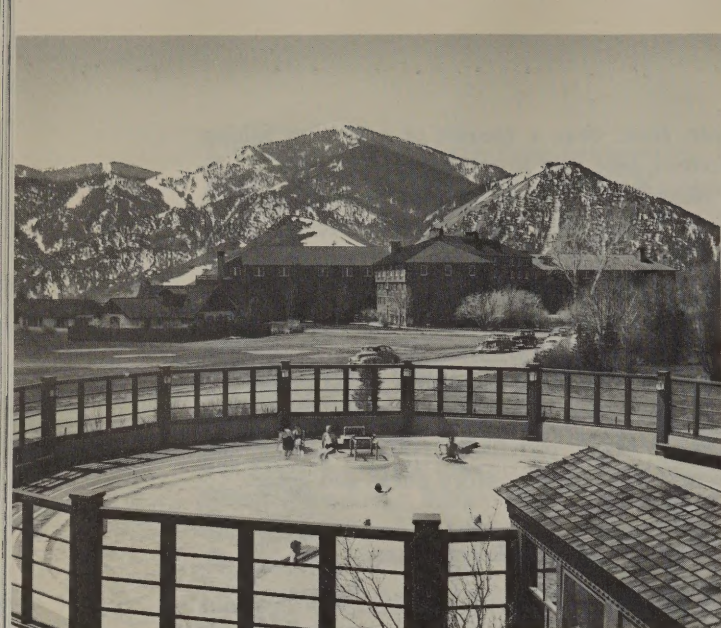
Indian tribes on many reservations throughout the Nation are developing their recreation and tourist potential. Boating and water sports are popular on two of Idaho's Indian reservations.

Coeur d'Alene Reservation (N. Idaho along Lake Coeur d'Alene). Coeur d'Alene Lake and nearby smaller lakes offer excellent boating and water skiing activities, in addition to camping and picnicking sites. Accommodations and service facilities are abundant throughout the area.

Kootenai Reservation (near the Canadian bor-

Pleasure boating on Lake Lowell has become so popular in Idaho that local interests have constructed boat landings.





Sun Valley, although best known as a winter ski resort, is attracting increasing numbers all year-round (left).

Fishing and picnicking mean fun in Idaho's parks. The only one blase about the outing is the beagle (right).



der). Camping and boating facilities are located in nearby resort areas such as Pend Oreille Lake, Priest Lake Recreational Area, and Coeur d'Alene National Forest. Food and lodging are available at resorts or nearby Bonners' Ferry.

Sites on Public Land

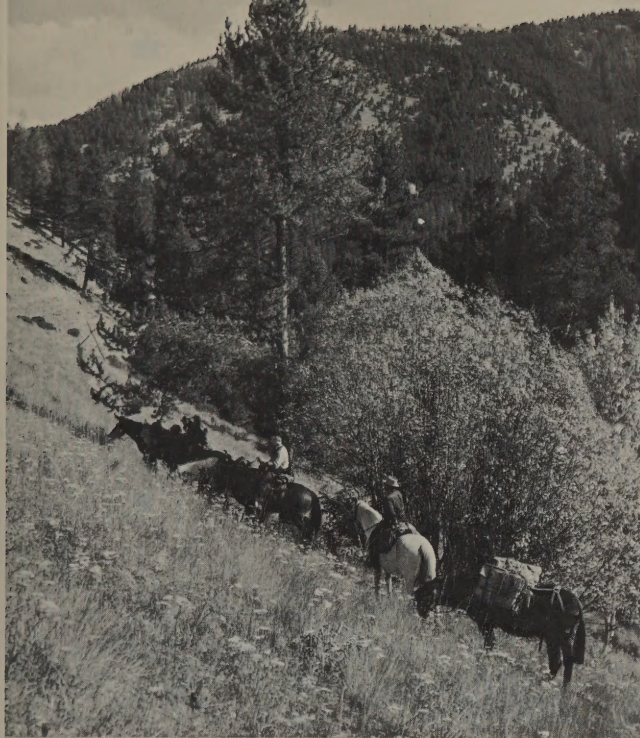
Hunting, fishing, camping and boating areas on public lands in Idaho are enjoyed by thousands of visitors yearly. Although most of these areas are undeveloped, many are potentially excellent recreation sites. The Department of the Interior's Bureau of Land Management is conducting an inventory of such areas, to serve as a basis for planning needed developments.

Recreationists in Idaho use public land areas along some 150 miles of the upper main Salmon and East Fork Rivers. In eastern Idaho, in the Island Park, Henry's Lake, and Wolverine and

Shotgun valley areas, public lands receive heavy use during summer months, being en route to the south and west entrances of Yellowstone National Park. In northern Idaho, recreational opportunities are chiefly in timbered areas along streams and lakes, such as the Salmon River, Hell's Canyon, and the St. Joe River area.

Fishing and water sports are prime attractions at the developed Killarney Lake Recreation Site, 20 miles east of Coeur d'Alene, while the Mineral Ridge Scenic Area at the head of Beauty Bay, some 9 miles east of Coeur d'Alene, is noted for its three mile vista-nature trail. From overlooks, hikers en route to the 715-foot summit of Mineral Ridge can survey the scenic and historic area of Lake Coeur d'Alene, the Coeur d'Alene mountains, and the surrounding forested terrain.

Two other recreation sites developed by the Bureau of Land Management are the Beggs and Steck sites near the Brownlee Reservoir in western Idaho. Visitors enjoy fishing, swimming and water sports at each site; picnicking and camping facilities are also available. Steck Recreation Site is 22 miles northwest of Weiser on Olds Ferry Road; Beggs Site is 26 miles west of Cambridge on State Highway 71.



Information about recreational areas on the public domain in Idaho is available from Bureau of Land Management District Offices in Boise, Shoshone, Burley, Idaho, Falls Salmon, and Coeur d'Alene.

Idaho's State-administered Areas

Four agencies of the State of Idaho administer recreational and related areas. The Department of Public Lands administers 29 areas totaling about 25,600 acres in the State park system. Under the Department of Fish and Game are 141 areas containing about 44,000 acres of public and private lands purchased or leased to provide hunting, fishing, and related activities. The Department of Highways has 28 small wayside rest and picnic areas averaging less than one acre each. The nine State forests cover 491,000 acres.

Private Enterprise

In the past few years private enterprise in the recreation industry has seen tremendous growth. Private timber companies operate eight recreation areas, and private power

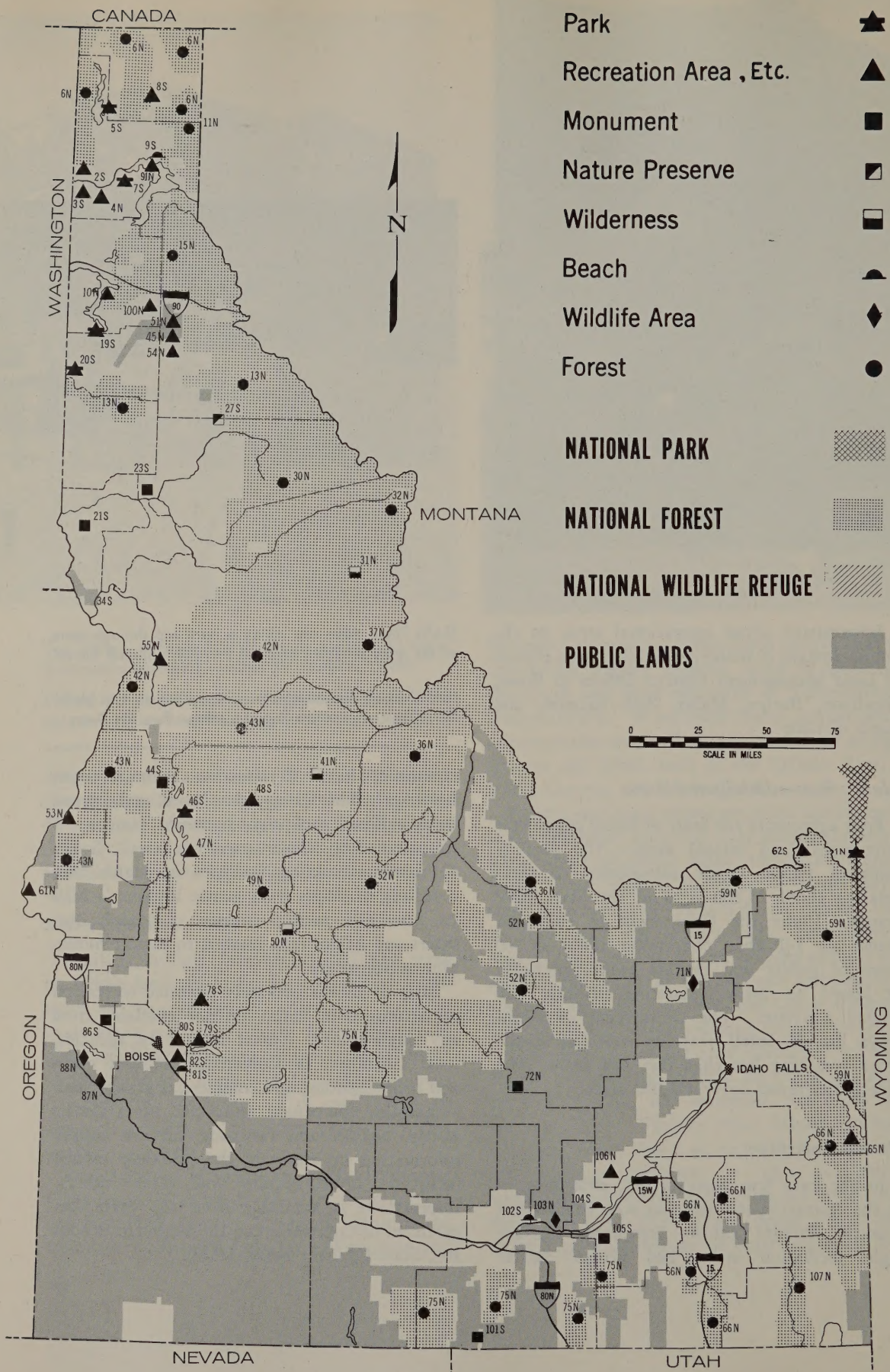


(Left) These riders are taking a pack trip through some of the more primitive areas of Payette National Forest.

(Right) Skiing has always been a popular sport in Idaho. Skiers here use the tow line at Lookout Pass Ski Area.

companies have 10 sites on their reservoir holdings. Sun Valley, developed and owned by a railroad company, is world famous for its outstanding winter-sports facilities. Today 20 developed skiing facilities in Idaho offer a variety of slopes from gentle beginner's hills to downhill racing courses. Licensed outfitters and guides take hunters to remote mountain wildernesses.

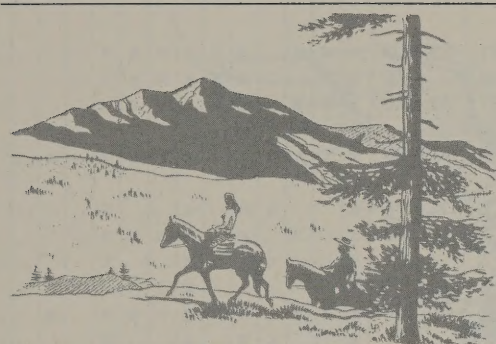
Lists of all the privately operated recreation opportunities in Idaho are not available from any single source. Travel bureaus and agencies, local Chambers of Commerce, outdoor clubs and organizations, and commercial groups such as gasoline companies, motel and hotel associations, airlines and railroads, all can supply information on many of the privately owned facilities. Local inquiry will reveal others. Information is available from the State Department of Commerce and Development, Room 108, State Capitol, Boise, Idaho.

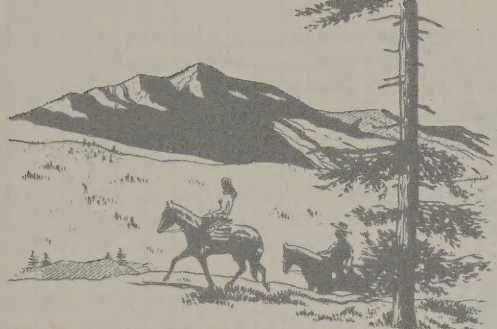


Idaho Outdoor Recreation Guide

HOW TO USE THIS GUIDE

The symbols on this map represent major areas in Idaho offering recreation. Areas described in the listings on the following pages may be located on the map by matching the numbers with the numbers beside the map symbols. Letters in the number refer to Federal (N), State (S), local (L), and quasi-public and private (P). Only major interstate highways and major cities are shown on the map. A more detailed road map can provide exact locations for those areas you may wish to visit.



	Number on map	Acreage		Type of use				Activities										
		Total land and water within area	Water surface (1)	Day and weekend	Vacation	Out-of-State target	Tourist en route	Picnicking	Hiking and riding	Camping	Boating	Swimming	Fishing	Hunting	Nature study	Winter sports	Wilderness experience	
FEDERAL																		
Recreation areas:																		
Albeni Falls Reservoir.....	4N	99, 100	96, 400	x	...	...	x	x	...	x	x	x	x	...	...	...	...	
Cascade Reservoir.....	47N	30, 194	26, 500	x	...	...	x	x	...	x	x	x	x	...	...	...	...	
Palisades Reservoir.....	65N	20, 150	16, 150	x	x	...	x	x	...	x	x	x	x	...	...	...	...	
American Falls Reservoir.....	106N	56, 580	56, 000	x	...	...	x	x	...	x	x	x	x	...	...	...	...	
Monument: Scientific: Craters of the Moon National Monument.....	72N	53, 545		x	x	x	x	x	x	x	...	...	...	...	x	...	...	
Forests:																		
Kaniksu National Forest (Idaho portion).....	6N	891, 348	L	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Kootenai National Forest (Idaho portion).....	11N	48, 851	S	x	x	x	...	x	x	x	...	...	x	x	x	...	...	
St. Joe National Forest.....	13N	868, 650	M	x	x	x	x	x	x	x	...	...	x	x	x	x	...	
Coeur d'Alene National Forest.....	15N	723, 408	L	x	x	x	x	x	x	x	x	x	x	x	x	x	...	
Clearwater National Forest.....	30N	1, 250, 772	S	x	x	x	x	x	x	x	...	...	x	x	x	...	x	
Lolo National Forest (Idaho portion).....	32N	426, 062	M	x	x	x	x	x	x	x	...	...	x	x	x	...	x	
Salmon National Forest.....	36N	1, 768, 728	M	x	x	x	x	x	x	x	...	...	x	x	x	x	x	
Bitterroot National Forest (Idaho portion).....	37N	460, 812	M	x	x	x	x	x	x	x	...	...	x	x	x	...	x	
Nezperce National Forest.....	42N	2, 196, 029	M	x	x	x	x	x	x	x	...	...	x	x	x	...	x	
Payette National Forest.....	43N	2, 307, 328	M	x	x	x	x	x	x	x	...	...	x	x	x	x	x	
Boise National Forest.....	49N	2, 633, 534	L	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Challis National Forest.....	52N	2, 447, 363	M	x	x	x	x	x	x	x	...	...	x	x	x	...	x	
Targhee National Forest (Idaho portion).....	59N	1, 319, 293	L	x	x	x	x	x	x	x	x	x	x	x	x	x	...	
Caribou National Forest (Idaho portion).....	66N	963, 939	L	x	x	x	x	x	x	x	x	x	x	x	x	x	...	
Sawtooth National Forest (Idaho portion).....	75N	1, 731, 563	M	x	x	x	x	x	x	x	...	...	x	x	x	x	x	
Cache National Forest (Idaho portion).....	107N	262, 897	S	x	x	x	x	x	x	x	...	...	x	x	x	...	...	
Wilderness:																		
Selway-Bitterroot Primitive Area.....	31N	1, 578, 551	M	x	x	x	...	x	x	...	...	x	x	x	...	x	...	
Idaho Primitive Area.....	41N	1, 224, 576	M	x	x	x	...	x	x	x	...	...	x	x	x	...	x	
Sawtooth Primitive Area.....	50N	200, 942	M	x	x	x	...	x	x	...	...	x	x	x	...	x	...	
Wildlife areas:																		
Camas National Wildlife Refuge.....	71N	10, 535	M	x	...	...	...	...	...	...	...	...	...	x	x	...	...	
Snake River National Wildlife Refuge.....	87N	376		x	...	...	...	...	...	...	...	...	...	x	x	...	...	
Deer Flat National Wildlife Refuge.....	88N	10, 795	9, 835	x	...	...	...	x	...	x	x	...	x	x	x	...	...	
Minidoka National Wildlife Refuge.....	103N	25, 630	12, 250	x	...	...	...	x	...	x	x	...	x	...	x	...	...	

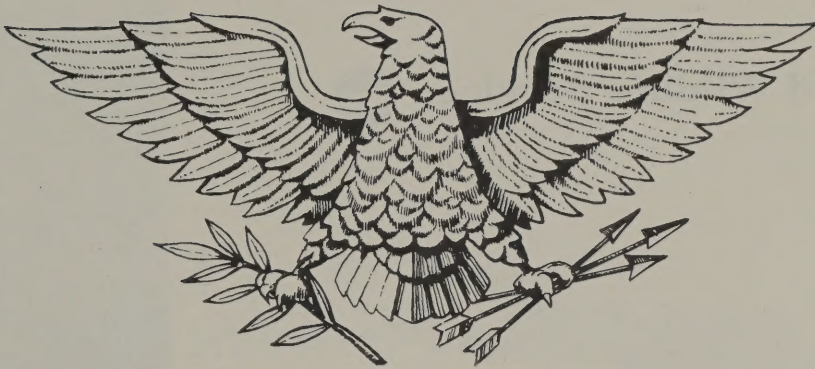
See footnotes at end of table.

		Number on map	Acreage		Type of use			Activities										
			Total land and water within area	Water surface (7)	Day and weekend	Vacation	Out-of-State target	Tourist en route	Picnicking	Hiking and riding	Camping	Boating	Swimming	Fishing	Hunting	Nature study	Winter sports	Wilderness experience
STATE																		
Parks:																		
Priest Lake Park.....	5S	8, 221	23, 400	x	x	x		x	x	x	x	x	x					
Little Round Lake Park.....	7S	640	40	x				x	x	x	x	x	x					
Heyburn State Park.....	19S	7, 981	32, 000	x	x	x	x	x	x	x	x	x	x					
Mary Minerva McCroskey Memorial State Park.....	20S	5, 000		x				x	x							x		
Ponderosa Park.....	46S	700	5, 000	x	x	x	x	x	x	x	x	x	x		x			
Recreation areas:																		
Dickinsheet Campground.....	2S	5		x			x	x		x			x					
Albeni Falls Recreation Area.....	3S	26	96, 400	x				x		x	x	x	x					
Deep Creek Park.....	8S	5		x			x	x		x			x					
Deadhorse Campground.....	48S	5		x				x		x								
Henry's Lake Recreation Area.....	62S	20	6, 356	x	x	x	x	x		x	x	x	x		x			
Pine Creek Recreation Area.....	78S	40		x			x	x		x			x					
More's Creek Recreation Area.....	79S	10	2, 850	x			x	x		x			x	x				
Bogus Basin Recreational Area.....	80S	640		x				x	x								x	
Discovery Park.....	82S	5		x			x	x										
Monuments:																		
Scientific: City of Rocks.....	101S	40		x				x		x						x		
Historic:																		
Spalding Park.....	21S	19		x			x	x										
Lewis and Clark Canoe Camp.....	23S	7		x			x	x										
Packer John Cabin Site.....	44S	42		x				x		x								
Ward Massacre Monument.....	86S	1		x			x	x										
Register Rock and Massacre Rock.....	105S	20		x			x	x		x								
Nature preserve: Land Board Park.....	27S	40		x				x								x		
Beaches:																		
Sunnyside Park.....	9S	34	94, 600	x				x		x	x	x	x					
Lucky Peak Reservoir.....	81S	900	2, 850	x				x			x	x	x					
Lake Walcott Park.....	102S	280	12, 250	x			x	x		x	x	x	x					
American Falls Reservoir.....	104S	920	56, 000	x			x	x		x	x	x	x					
FEDERAL—PUBLIC LANDS (2)																		
Beggs Recreation Site.....	53N	14		x	x	x	x	x	x	x	x	x		x	x			
Steck Recreation Site.....	61N	12		x	x	x	x	x	x	x	x	x		x	x	x		
Pack River Recreation Site.....	91N	25		x			x	x	x	x	x	x		x	x	x		
Killarney Lake Recreation Site.....	100N	20		x				x	x	x	x	x		x		x		
Mineral Ridge Scenic Area.....	10N	152		x		x	x		x							x		
Crystal Lake Recreation Area.....	45N	20		x				x	x	x				x	x	x		
Mirror Lake Recreation Area.....	51N	20		x				x	x	x				x	x	x		
Tingley Spring Recreation Site.....	54N	40		x				x	x	x						x	x	
Skookumchuck Recreation Site.....	55N	30		x			x	x	x					x				

Footnotes:

- (1) Where water surface acreage not shown: "S" indicates water area under 500 acres. "M" indicates water area of 500 to 10,000 acres. "L" indicates water area of over 10,000 acres.
- (2) Recreation areas on lands administered by the Department of the Interior's Bureau of Land Management.

Programs of Federal Natural Resource Agencies

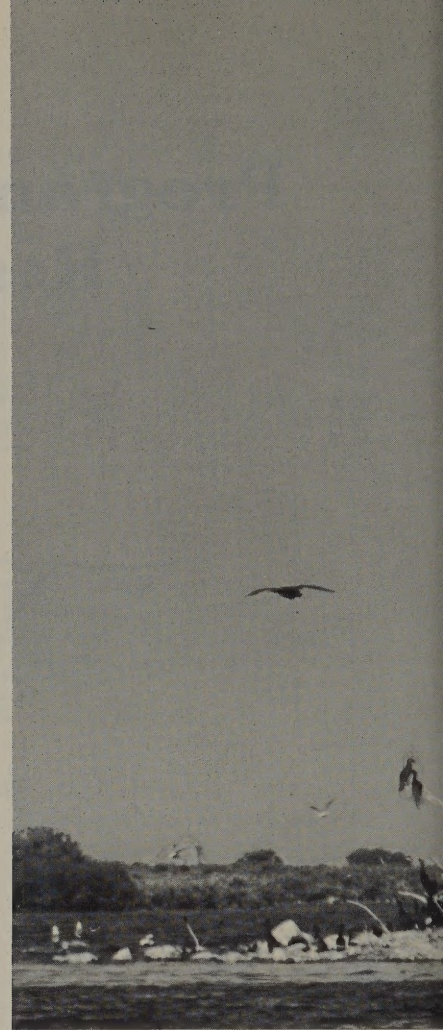


The wise use and protection of Idaho's natural resources long have been the concern of agencies of the Federal Government. The following pages describe some of their programs and interests. Additional information can be obtained by contacting the offices listed with each section and elsewhere in this publication.

Department of the Interior
Bureau of Sport Fisheries and Wildlife
U.S. Fish and Wildlife Service



Fish and Wildlife Service



The Department of the Interior's Fish and Wildlife Service is composed of the Bureau of Sport Fisheries and Wildlife, and the Bureau of Commercial Fisheries. In Idaho, the Bureau of Sport Fisheries and Wildlife maintains three national wildlife refuges, and a national fish hatchery, and conducts numerous research programs.

Two U.S. game management agents, with offices in Boise and Pocatello, carry out a management and enforcement program in the State. As waterfowl hunting increases in popularity, the problems of enforcing hunting regulations are intensified. For example, close surveillance is needed in protecting the trumpeter swan in Fremont, Clark, and Teton Counties where a

large wintering population is concentrated. Game management agents cooperate with State agencies in detecting and preventing illegal hunting and interstate movements of game.

One wildlife research activity involves the Idaho Cooperative Wildlife Research Unit, organized in 1947 and governed by a three-member coordinating committee representing the University of Idaho, the Idaho State Fish and Game Department, and the Bureau of Sport Fisheries and Wildlife. These three organizations and the Wildlife Management Institute contribute money to the Unit.

The Unit program aims at preparing students at the graduate level for careers in wildlife management, conducting research, providing tech-



Cormorants and great blue herons find shelter and places for nesting at Gull Island on the Minidoka Wildlife Refuge.

nical assistance to the State Fish and Game Department, and disseminating information about conservation. Results of studies conducted by the Unit on a variety of wildlife species and their habitats are published in both technical and popular form and provide basic information for resource management by both State and Federal agencies.

Studies are made on sage grouse, elk, and beaver; on competition between livestock and big game; and on the significance of dew for certain wildlife species.

Another wildlife research activity of the Fish and Wildlife Service pertains to control of destructive animals. Jackrabbits, which fluctuate greatly in numbers over the years, destroy valu-

able crops, such as alfalfa; compete with cattle for forage on rangelands; and do serious damage to grass seedlings planted to improve the range. A new field station has been established in southern Idaho to study jackrabbit damage and methods of control. Studies are also being made to determine the choice of baits, the timing and placement of the baits, and the effect of the control chemicals on other forms of wildlife.

The Bureau of Sport Fisheries and Wildlife is concerned also with research on starlings and blackbirds in Idaho. Huge flocks of these birds, settling in cattle feeding lots, consume and contaminate large amounts of feed. The problem is common to a number of States and a concentrated effort is being made to find practicable solutions.



Fish from the Hagerman hatchery are trucked many hundreds of miles to restock fresh water lakes both in and out of State.



A cooperative fishery unit was recently established at the University of Idaho under an agreement by the University, the State Department of Fish and Game, and the Bureau of Sport Fisheries and Wildlife. Studies proposed for this unit include such pressing problems as the effects of water impoundments on such sport fish as the steelhead and salmon.

Wildlife Refuges and Fish Hatchery

The Bureau of Sport Fisheries and Wildlife maintains a National Fish Hatchery at Hagerman. Congress also has authorized another Federal hatchery to be located on the Middle Snake River. This hatchery will produce salmon and steelhead to offset the reduction of these

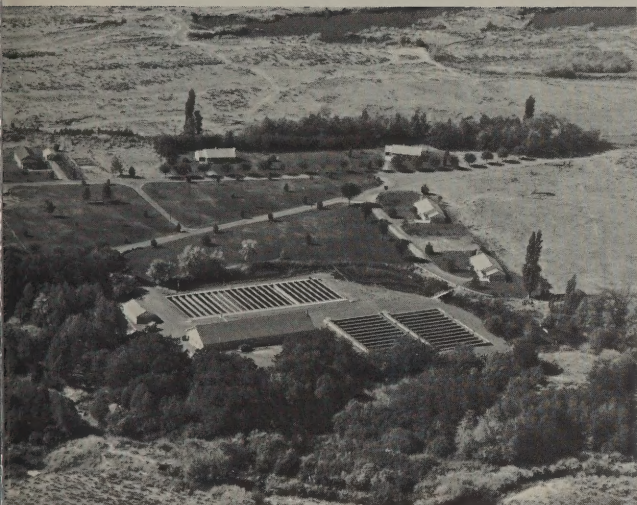
fish resulting from loss of spawning areas because of dams. Other trout will be produced here, too. A site is being considered at Kooskia where water quality and quantity studies are underway.

The Bureau also administers three national wildlife refuges in Idaho:

Camas National Wildlife Refuge, (10,500 acres) lies west of U.S. Highway 91, 38 miles north of Idaho Falls in Jefferson County. Ducks, geese, and other waterbirds use the refuge marshes. Pronghorn antelope are also present.

Deer Flat National Wildlife Refuge (11,000 acres at a Bureau of Reclamation reservoir) is five miles southwest of Nampa on Lake Lowell. Several islands of the Snake River

Beside its other attractions, Deer Flat Refuge is the site of an annual regatta.



Hagerman National Fish Hatchery produces from 2 to 4 million rainbow trout yearly.

near Marsing which serve as a nesting area for ducks and geese are also a part of the refuge. Deer Flat is a concentration area for wintering waterfowl, especially mallards and Canada geese. Over a half million mallards have visited this refuge.

Minidoka National Wildlife Refuge contains 25,600 acres on Lake Walcott, a Bureau of Reclamation reservoir on the Snake River about 13 miles northeast of Rupert. It is an excellent nesting and migration area for waterfowl, shorebirds, waterbirds, and marshbirds.

Federal Aid Projects

The Department of the Interior cooperates with the State fish and game agency in fish and

wildlife restoration measures using funds from Federal excise taxes on sporting arms, ammunition and fishing tackle. This program is administered by the Bureau of Sport Fisheries and Wildlife which finances up to 75 percent of the cost of each State project.

Idaho has a diversified Federal Aid fisheries program which includes management investigations, land acquisition, and habitat development. Investigations are underway to determine the toxic effects of pesticides and other chemicals on fish and fish-food organisms. Idaho has a continuing program for the purchase and development of areas to provide access for fishermen. Fish trapping and counting weirs are being constructed on important salmon and

steelhead streams to provide needed data on these important species.

The largest share of Idaho's wildlife restoration apportionment is spent on management areas. Eight areas primarily for waterfowl and upland game management, and four big game ranges are being developed or maintained with Federal Aid funds. Providing hunter access continues to be an important activity. A snow removal project makes possible an increased deer and elk harvest in areas normally inaccessible because of deep snow. The State is purchasing land or easements for access to the Boise and Payette Rivers. A development project calls for building or reopening trails on Forest Service lands.

As in many States, studies which provide information on big game populations, harvest, and range conditions are a significant part of the wildlife restoration program. An intensive sage grouse study is underway to determine this game bird's reaction to environmental changes and to obtain basic information for its management. Live trapping and transplanting of mountain goats into unoccupied range is a continuing effort.

Accelerated Public Works funds for Federal Aid projects also have been made available to Idaho. Areas eligible for development are primarily in the "panhandle" portion of the State where trail and road construction prevails. This will make remote fishing and hunting sites more readily available to sportsmen. Boat launching and mooring areas with parking and comfort facilities are also being provided to improve the attractiveness of accessible lakes and streams.

Fishery Development Program

The Columbia River Fishery Development Program is one of the principal activities of the Fish and Wildlife Service's Bureau of Commercial Fisheries in Idaho. It seeks to mitigate losses of the salmon and steelhead from water project developments and dams in the Columbia River Basin. The States of Idaho, Oregon, and Washington are cooperating with the Fish and Wildlife Service in this program.

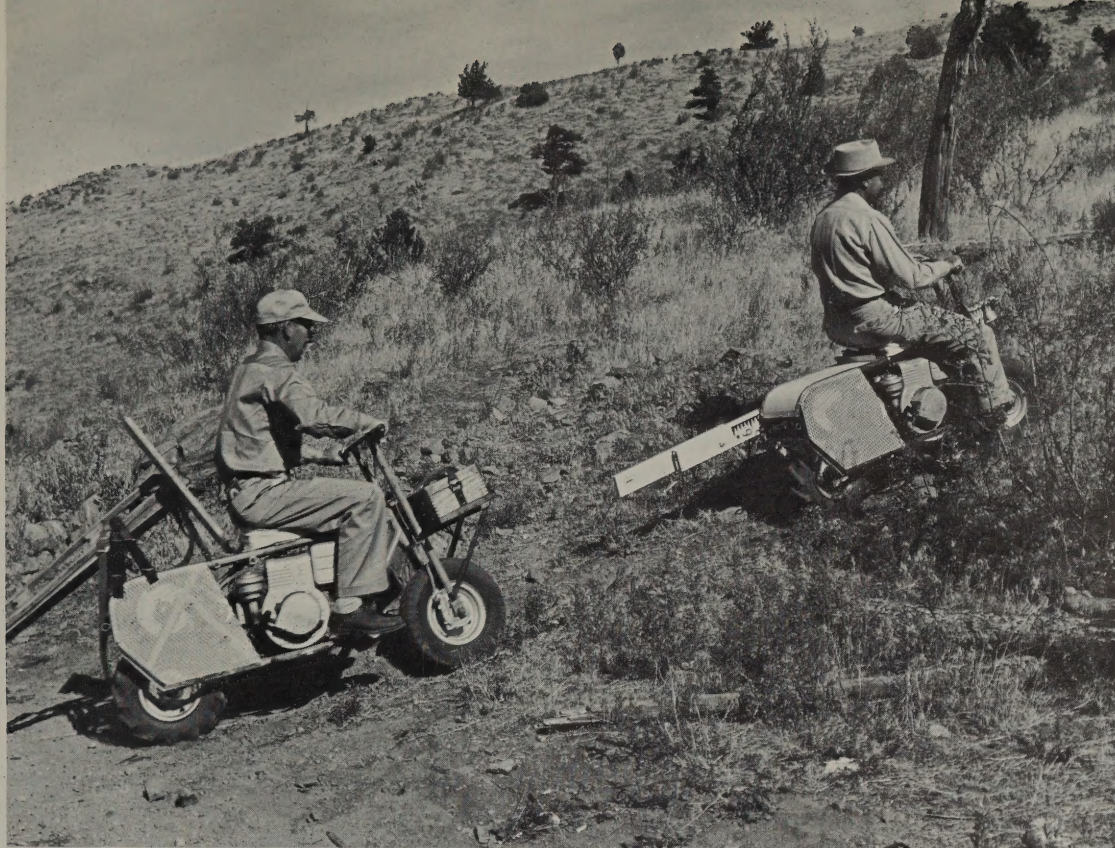
Program activities include constructing fishways at points where natural falls or obstructions impede or block the migration of fish; modifying existing fishways; screening irrigation diversions to prevent loss of young fish; clearing debris, log jams, and minor waterfalls that deter fish passage, and developing new management procedures.

Water development projects proposed for construction or for license by the Federal Government are studied to determine their effect on fish and wildlife resources and measures needed to prevent losses as well as to improve fishing and hunting. In studying these projects, the Service works closely with the Idaho Fish and Game Department.

A major concern is to maintain and develop anadromous fish runs in the Snake River and its tributaries. This river system produces about 40 percent of all the salmon and steelhead trout of the Columbia River Basin, and that portion above the confluence of the Salmon River accounts for 75 percent of the Snake River production. Although fish ladders help fish headed upriver to spawn past certain dams, no satisfactory fish passage method has been developed for use at high dams. The Fish and Wildlife Service is continuing its efforts to help spawning fish to move upstream and young fish to migrate downstream.

About 11,560 acres of land and water at five water-development projects are being made available to the Idaho Fish and Game Department for fish and wildlife management purposes. These include areas on the Anderson Ranch and Lucky Peak projects on the Boise River, the Black Canyon project on the Payette River, the C. J. Strike project on the Snake River, and the Albeni Falls project on the Pend Oreille River.

Further information on programs of the Fish and Wildlife Service in Idaho may be obtained from the U.S. Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Office of River Basin Studies, 5805 Franklin Road, Boise.



Geological Survey engineering technicians use scooters powered by $5\frac{3}{4}$ horsepower engines to get over rough terrain.



Geological Survey

Scientists of the Geological Survey conduct a large number of geologic, geophysical, and geochemical studies in Idaho. These studies contribute knowledge of a wide range of mineral resources and of the earth's composition, structure, and history. Detailed investigations of known or potential mineral resources are underway throughout the State. These involve such minerals as cobalt in the Blackbird Mountain District, high alumina clays in Kootenai County, phosphates in Caribou, Bear Lake, and Franklin Counties, quartzites in the southeastern part of the State, tantalum-niobium at the Yellow Jacket mine near Salmon and in Ramey Ridge Complex at Yellow Pine; rutile in the Big Creek area in central Idaho, and uranium and silica in the Mt. Spokane area, Idaho-Washington. Research on geochemical and other modern field methods of prospecting for specific mineral com-

modities is included in these investigations.

Geologic mapping is the complex process by which a field geologist puts patterns and symbols on a map to indicate what kinds of rocks occur where, and what the probable shapes and structures of the various rock masses are. Detailed geologic mapping projects are underway in parts of Caribou and Bannock Counties and in Portneuf Canyon between Inkom and Pocatello; in the Central Idaho Basin ranges; in Valley County; and in the Surveyors Ridge area in the northern part of the State.

Many of the fundamental problems of geology that affect man and his environment will be solved through detailed knowledge of the crust and upper mantle—the 600-mile-thick outer “rind” of the earth. Geologists use seismic, gravity, magnetic, and electrical measurements to study the composition and structure of the

earth's crust and upper mantle in most of the major geologic provinces of the West.

Water Resources Investigations

The Department of the Interior's Geological Survey describes the occurrence, availability, and quality of the water resources of Idaho. This involves both the surface and underground water, whether under natural or man-made conditions. Much of the work is done in cooperation with State, municipal, and other Federal agencies.

Streamflow records are collected at 233 continuous gaging stations throughout Idaho. In this network, 78 primary stations are maintained for longterm hydrologic records, 16 secondary stations are being operated for a few years to obtain records adequate for general hydrologic purposes, and the remaining 139 stations serve specific needs in the operation of water management projects in Idaho. Chemical quality of the water is monitored at 6 stations and water temperature is measured daily at 3 stations. The network includes 132 observation wells. Records are also obtained at 175 wells in connection with other investigations and development projects.

The Geological Survey cooperates with the Atomic Energy Commission in a study of the geologic and hydrologic aspects of liquid radioactive waste disposal at the National Reactor Testing Station near Arco, Idaho. These studies have included the investigation of the basic ground-water hydrology of the area, investigation of the movement of radioactive elements through the ground from the various disposal sites at the station; and the development of criteria for the use of ground disposal of radioactive wastes. Purpose of these studies is to evaluate and guide the radioactive waste disposal practices at the Testing Station and to provide a basis for designing safe methods of disposal at reactor sites being planned in other parts of the country.

Topographic Mapping

Topographic maps in the 7½- and 15-minute series have been prepared for about 38 percent

of the State. The 7½-minute maps (1 inch=2,000 feet) cover about 10 percent while the 15-minute maps cover about 28 percent of the State.

About 18,200 square miles of topographic mapping is in progress in Idaho. Much of this mapping will be used for water conservation and development studies in the Snake, Salmon, Selway and Kootenai River basins. In addition, this mapping will provide valuable information necessary in the fields of highway planning, forest management, mineral investigations and land reclamation studies.

The entire State of Idaho is covered by 1:250,000 scale (1 inch=4 miles) topographic mapping. About 50 percent of this series of maps is fairly up-to-date, and most of the remainder is being revised.

In general, the long-range plan for topographic mapping in Idaho provides for surveying the entire unmapped area at 1:24,000 scale (1 inch=2,000 feet) standards within the next 13 years, and by 1981, the achievement of complete map coverage of the State in this series.

A State map at a scale of 1:500,000 (1 inch=8 miles) is being prepared for public distribution.

Mineral Programs

Geological Survey's Branch of Mining Operations supervises prospecting, development, and production of minerals other than oil and gas on Federal and Indian lands, and issues mineral leases and permits.

The Branch of Mineral Classification is engaged in an extensive geologic mapping and classifying mineral lands subject to lease by the Federal Government. Primary emphasis at present is in geologic mapping and trenching of phosphate deposits in southeastern Idaho.

Information on the various geologic and topographic maps, mineral resources maps, water resources reports, and other Geological Survey publications relating to Idaho can be obtained by writing the Director, Geological Survey, Department of the Interior, Washington, D.C., 20240.



These Bureau of Mines engineers in the Coeur d'Alene District conduct a pull test on a new Bureau-developed device.



Bureau of Mines

Activities of the Bureau of Mines in Idaho are designed to further conservation of Idaho's mineral resources by contributing to their wise development and use by promoting safe working conditions in the mineral industries.

Resource-Evaluation Studies

Bureau of Mines engineers, mineralogists, and other specialists have studied intensively Idaho's iron, tungsten, titanium, tellurium, beryllium, phosphate rock, and kyanite resources. Results of these investigations, which include delineat-

ing, sampling, and appraising many mineral deposits throughout the State, are widely disseminated to industry and to other interested segments of the public so that resource development will be encouraged wherever it is practicable.

A special mobile laboratory—conceived, designed, and built by Bureau of Mines technologists to attain greater efficiency in sampling and analyzing minerals—is now being used with outstanding success in exploring for rare metals, not only in Idaho, but throughout the Pacific

Northwest. The Bureau also has developed improved techniques for computing ore reserves in certain types of mineral deposits and has devised a classification system that makes it possible to predict how Western phosphate rocks will respond to different methods of treatment.

Working in close cooperation with the Department's Bureau of Reclamation, experts from the Bureau of Mines conduct studies at sites proposed for the construction of dams and reservoirs, so that the effects of such construction on recovery of valuable minerals can be forecast.

Metallurgy

Intensive Bureau of Mines research on some of Idaho's most complex sulfide ores has yielded a workable method for recovering both mercury and antimony. Bureau experiments helped solve long-standing problems in processing thorium—a mineral with important potential for nuclear energy uses.

Tantalum and columbium, metals needed for special space-age applications, have been recovered with a process developed by the Bureau of Mines. The method uses concentrates of the

mineral euxenite, which Idaho has in relative abundance.

Other Bureau of Mines studies have led to improvements in the quality and marketability of Idaho clays and have made possible the production of marketable phosphate products from many marginal and low-grade phosphate-bearing materials which are mined in the West.

Health and Safety

Bureau of Mines health and safety engineers, pursuing an objective dating to 1910 when Congress created the organization, visit underground and surface mines and mineral-processing plants in Idaho each year and train supervisors and workmen in first aid, mine rescue, and accident prevention.

Further information on minerals of Idaho and the activities of the Bureau of Mines may be obtained from the Spokane Mining Research Laboratory and the Spokane Field Office of Mineral Resources Area VII, both located at 1430 N. Washington Street, Spokane, Washington, 99251.

Office of Minerals Exploration

Idaho mining interests have participated actively in the exploration assistance program for minerals introduced in 1951 under the Defense Minerals Exploration Administration and continued since 1958 under the Office of Minerals Exploration, Department of the Interior.

During the first twelve years of this program, exploration work valued at more than \$11.8 million has been authorized on 92 projects in Idaho. The Government has spent \$4.7 million on the explorations.

Discoveries have been certified on thirty-two projects. The principal mineral commodities sought have been antimony, cobalt, columbium-tantalum, copper, fluorspar, lead, manganese,

mercury, mica, molybdenum, monazite, silver, thorium, tungsten, and zinc.

Under this program, the Federal Government assists private industry in domestic minerals exploration by paying 50 percent of the cost of approved exploration work.

Information about this program can be obtained by writing the Field Officer, Office of Minerals Exploration, Region I, South 157 Howard Street, Spokane, Washington, 99204, or to the Director, Office of Minerals Exploration, Department of the Interior, Washington, D.C., 20240.



This crew of Indians, hired for seasonal work by the Bureau of Indian Affairs, is clearing some Kootenai timberland.



Bureau of Indian Affairs

In addition to helping Idaho Indians conserve, develop, and use their resources effectively, the Department of the Interior's Bureau of Indian Affairs provides them with a variety of other public services.

Most Indian children in Idaho attend local public schools. The Bureau of Indian Affairs no longer operates schools in the State, but it does provide financial assistance to the State for the education of Indian students from non-taxable Indian lands in 14 public school districts. A few Idaho Indian children attend Bureau of

Indian Affairs boarding schools in Kansas, Oklahoma, and South Dakota.

The Bureau conducts adult education classes in communities on the Fort Hall, Coeur d'Alene, Kootenai, and Nez Perce Reservations. During the summer months the adult educators work with Indian children to help them find summer employment in their own communities and to encourage high school graduates to seek higher education.

Scholarship aid for higher education is provided for their members by the Coeur



A Coeur d'Alene allottee is learning from a soil conservationist how to use these legumes for fertilizer.

d'Alene, Nez Perce, Shoshone-Bannock, and Shoshone-Paiute Tribes; limited aid in the form of grants is available from the Bureau of Indian Affairs and from outside organizations.

Law and Order

In 1963 the Idaho State Legislature assumed jurisdiction over Indians on reservations in selected fields including compulsory school attendance, juvenile delinquency, dependent, neglected, and abused children, insanity and mental illness, public assistance, domestic relations, and operation of motor vehicles on public highways. Federal jurisdiction no long-

er applies in these fields, but it continues to apply to major offenses by Indians on reservations. The tribes exercise jurisdiction over lesser crimes by Indians on the reservations through Indian courts, since the 1963 State statute provides that State jurisdiction shall be concurrent with tribal jurisdiction. The Bureau of Indian Affairs provides assistance to the tribes in their local law enforcement programs.

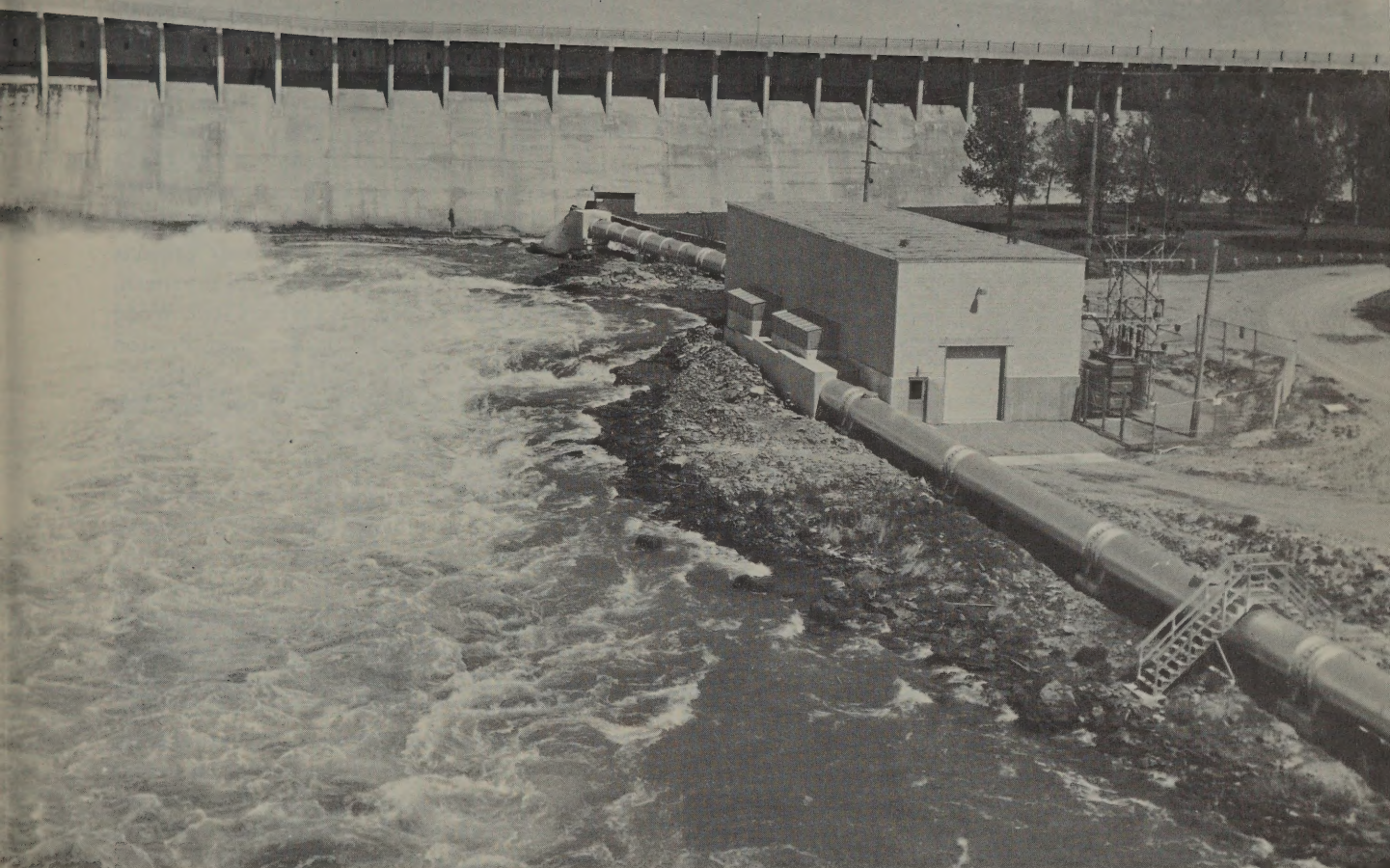
Employment and Welfare Assistance

The Bureau of Indian Affairs provides employment assistance services at the Fort Hall Indian Agency to help eligible Indian applicants obtain work in urban communities away from the reservations. An important part of this employment assistance activities involves providing vocational training in trade schools or through on-the-job training programs to eligible adults.

Bureau of Indian Affairs social workers are stationed at the Fort Hall Agency to assist Indians on the Fort Hall Reservation and at the Northern Idaho Agency to administer to the welfare needs of the Indians on Kootenai, Nez Perce, and Coeur d'Alene Reservations. Welfare needs of the Indians on Duck Valley Reservation are administered by the Bureau's agency in Nevada.

General assistance is provided to needy Indians on reservations who are not eligible for public assistance under the Social Security Act (old age assistance, aid to the blind, aid to families with dependent children, and aid to the totally and permanently disabled) from their county welfare departments. Social services are provided for Indians with serious social problems, and child welfare services are provided for Indian children, including arrangements for the care of dependent neglected, and handicapped children.

Further information on Indians on Idaho reservations and the activities of the Bureau of Indian Affairs may be obtained from the Portland Area Office, Bureau of Indian Affairs, 1002 NE. Holliday Street, Portland, Oregon, 97208.



The four units of this Michaelaud Flats Project pumping plant can pump out more than 940 gallons of water per second.



Bureau of Reclamation

For the past sixty years the Bureau of Reclamation has played an active and important role in the economic growth of Idaho. The Bureau's multipurpose projects not only bring tremendous benefits from irrigation and hydroelectric power generation, but also provide facilities that enhance recreation, flood control and fish and wildlife. Water for domestic, municipal, and industrial purposes is also provided by Bureau of Reclamation projects.

The Bureau's Regional Office, Snake River

Development Office, and Central Snake Project Office are in Boise. Field offices are in Coeur d'Alene and Burley.

In a recent year, over 1.5 million acres of land in Idaho received all or part of their irrigation water through facilities built or rehabilitated by the Bureau of Reclamation on ten projects. In addition, five Bureau hydropower plants associated with these projects add 163,900 kilowatts of installed capacity to the area's power supply. The total crop value from lands irri-



Water from Reclamation projects is needed to irrigate dry orchards and for watering sheep (above and below).



(Below) Cascade Reservoir, a part of the multipurpose Boise Project, makes a scenic backdrop for a campsite



gated in Idaho by Bureau projects was an estimated \$165,801,340 in 1962.

Minidoka Project lands, totaling 1,162,000 acres in 1962, extend irregularly from Ashton along the Snake River to Bliss. Water is regulated in Jackson Lake Reservoir in Wyoming and other reservoirs in Idaho. The Boise Project, in southwestern Idaho, is capable of furnishing water to 359,180 acres. In northern Idaho, the Avondale, Dalton Gardens, Rathdrum Prairie, and Lewiston Orchards projects supply water to over 10,000 acres. In the south, over 57,000 acres are served by the Little Wood River, Michaud Flats, Owyhee, and Preston Bench projects.

The Mann Creek Project near Weiser has been authorized, and when constructed will supply irrigation water to 5,000 acres.

Burns Creek Dam and Reservoir, on which a report has been submitted to the Congress, would be operated in conjunction with the existing Palisades Reservoir to augment the water supply for some 650,000 acres of land.

To increase water and power supply, reclamation engineers are studying the feasibility of additional units for the Mountain Home Division of the Snake River Project, in southwestern Idaho; Prairie Division of the Rathdrum Prairie Project in northern Idaho; the Bear River Project in the southeast corner of the State; and the Weiser River Project in western Idaho.

Basin studies are included in the general investigation program. Surveys of the Lower Snake River basin evaluate irrigation, flood control, municipal and industrial water supplies, recreation, and enhancement of the fishery resource. Lands in Idaho, Washington, and Oregon are included.

The Pend Oreille River basin is being studied in Bonner County, Idaho, and Pend Oreille County, Washington. Surveys of irrigation, flood control, recreation, power development, and fish and wildlife possibilities for the basin have been completed.

Further information on Bureau of Reclamation projects in Idaho may be obtained from the Regional Director, Bureau of Reclamation, Box 937, Boise, 83701.



Having a family picnic at the Little Redfish Campgrounds is always an enjoyable way of spending Saturday afternoon.



Bureau of Outdoor Recreation

The Bureau of Outdoor Recreation in the Department of the Interior administers a program of grants-in-aid available to all States for outdoor recreation planning, acquisition, and development. Authorized by the Land and Water Conservation Fund Act of 1965, this program provides Federal matching funds for State and local outdoor recreation projects.

The Land and Water Conservation Fund derives moneys from "pay-as-you-go" user fees and entrance charges at Federal recreation areas, sale of surplus Federal property, a Federal tax on motorboat fuels, and advance appropriations.

The Bureau of Outdoor Recreation provides technical assistance to Idaho and other States in statewide planning necessary for State participation in the 50-50 matching fund program.

These plans will provide guidelines for future outdoor recreation developments by individuals, private organizations, cities, counties, and various units of the State government.

Chief duties of the Bureau of Outdoor Recreation are to cooperate with the States on outdoor recreation matters, promote coordination in Federal outdoor recreation programs, administer the grants-in-aid program, and develop a long-range, continuing nationwide outdoor recreation plan based on State, Federal, regional, local, and private plans. The Bureau manages no lands or recreation facilities.

The Governor of Idaho has designated the State Planning Coordinator to serve as Liaison Officer for the State in working with the Bureau of Outdoor Recreation.



Bureau of Land Management



The Department of the Interior's Bureau of Land Management administers the lands and resources of more than 11 million acres of public domain in Idaho. These are the lands which remain in Federal ownership after creation of national forests, fish and game refuges, reclamation dam sites, and patent of thousands of homesteads, mining claims, and other lands for private use.

The public domain in Idaho is composed of a wide variety of lands and waters including range, timber, mining, recreation areas, fish, and wildlife, forests, and other resources. The Bureau of Land Management administers these

Fire control crews, using hoses connected to a pumper truck, wet down the sagebrush to halt the advance of a range fire (left).



(Above) Severe infestations of insects can destroy forage and valuable timber. BLM technicians must check trees for insects.

lands under multiple use management in order to facilitate their maximum economic use consistent with long-term objectives.

Activities of the Bureau of Land Management in managing the public domain include surveys of the land; forest and range management; protection against fire, insects, and disease; construction of roads, bridges, and water control devices; orderly disposition of land, and maintenance of public land records.

Range Management

More than 11 million acres of public domain

in Idaho are organized in grazing districts established under the Taylor Grazing Act of 1934. Large blocks rather than scattered tracts of land are in these districts, administered from Bureau of Land Management offices in Boise, Shoshone, Burley, Idaho Falls, Salmon, and Coeur d'Alene.

Grazing on the public lands is important to livestock operations in the State. In a recent year, permits were issued in Idaho grazing districts for about a million cattle, horses, sheep, and goats belonging to more than 2,000 operators. In addition to livestock, an estimated 145,000 big game animals—antelope, deer, elk,

moose, and mountain sheep—use these lands for forage and habitat.

The Bureau of Land Management's intensive range conservation and improvement program provides for stabilization of soil resources for plant production, watershed protection, and most efficient use of water to improve vegetative cover. A recently initiated 10-year Owyhee Project in southwestern Idaho demonstrates these and other aspects of multiple use management.

The Owyhee Project covers about 5 million acres located mostly in Owyhee County with smaller bordering areas in Twin Falls and Elmore Counties. Range rehabilitation, construction of access roads, development of sanitation and protection facilities at 36 recreation areas, and additional fire protection facilities are all planned for this area which now suffers from range deterioration and lack of access, development, and protection.

While concentrating on soil conservation and erosion control and on livestock and wildlife management in the Owyhee Project, Bureau of Land Management work gives full recognition to recreation, minerals, and other resources.

Cooperative efforts between local groups and the Bureau of Land Management contribute substantially to the range management program in Idaho. Under a cooperative range research program with the University of Idaho, experimental pastures have been established at Point Springs in the Raft River Valley and on the Owyhee desert. Halogeton, a noxious range weed, is being studied at plots located in southern Idaho. These areas will also allow development and utilization of range rehabilitation practices.

Other cooperative efforts between stockmen and the Bureau of Land Management have developed thousands of springs, wells, and stock ponds for Idaho's livestock and wildlife.

Forest Management

Forests and woodlands on public land in Idaho cover nearly 689,000 acres. Of these, some 302,000 acres are commercially valuable. Primary objectives of the Bureau of Land Manage-

ment's forest management program in Idaho are maximum efficiency in timber production, improved and protected watersheds, and the utilization and maintenance of the great recreation and wildlife potential of the forests.

Reforestation and stand improvement have been initiated in Idaho during the past few years. Major operations now in progress include an extensive commercial forest inventory, rehabilitation plans and surveys, and sales of forest products.

The forest products sales program calls for standing timber to be cruised, marked, and graded for appraisals. Because of the scattered pattern of the public domain in Idaho, obtaining access for the removal of forest products is exceptionally difficult. This problem is being met by an active access road program financed with appropriated funds, and by construction of other roads under timber sale contracts.

Reforestation of all deforested commercial acreage is scheduled for completion by 1970. Current plantings use stock produced at Forest Service nurseries.

The Bureau of Land Management is preparing a program requiring annual cutting on a sustained yield basis. It has initiated a land exchange program in an effort to consolidate forest lands into manageable units.

Fire Control

One of the greatest threats to public land resources in Idaho is wildland fires. Not only are resources such as forage and timber burned, but valuable soil is left vulnerable to erosion after fire destroys the protective plant cover.

Personnel trained to use the most recent mechanized and chemical fire control methods are vitally important to the Bureau of Land Management fire protection program. A statewide radio communication system of stationary, mobile, portable, and aircraft radios is used in fire control, linking all districts and fire personnel into one coordinated operating unit.

The Bureau of Land Management employs public information and education programs, latest firefighting equipment, and a detection system which includes 10 lookout stations in an

effort to reduce the annual fire loss. In a recent year, the number of fires was held down to 152, as compared with the 15-year average of 280 fires annually.

Mineral Activities on Public Land

The Bureau of Land Management administers the General Mining Laws of 1872 and the Mineral Leasing Laws of 1920, which apply to the public lands and to certain privately owned land on which mineral rights have been reserved to the Federal Government. On Idaho public lands, phosphate production is the chief mineral activity. In a recent year, these lands produced 512,258 short tons of phosphate—more than half the total phosphate production from all lands administered by the Bureau in the nation for that period. Phosphate deposits are used for production of both elemental phosphorous and phosphate fertilizers. Other than phosphate leasing, mineral leasing on public lands in Idaho is negligible.

Under the provisions of the Multiple Surface Use Act of July 23, 1955, (Public Law 167), the Bureau of Land Management is working to determine surface rights on unpatented mining claims in certain problem areas. Work has been completed on approximately 1.5 million acres. In addition, the Bureau of Land Management helps the Federal Bureau of Public Roads and the National Park Service determine the validity of unpatented mining claims in conflict with the programs of these agencies. It also helps them appraise patented claims and valid unpatented claims involved in such projects.

Recreation Development

The Bureau of Land Management is conducting an inventory and evaluation of public lands with recreational potential. With data being compiled on actual visitor use and public recreation needs, this inventory will provide a basis for forecasting future requirements and for planning needed developments.

The Bureau recently completed its first recreation project in Idaho—the Mineral Ridge Scenic Area, a 152-acre tract at the head of Beauty Bay in the northern part of the State. This area



A fence line is being staked out to control livestock movement and prevent the excessive use of rangelands.

was developed with accelerated public works funds, appropriated to the Bureau of Land Management under the Public Works Acceleration Act of 1962 to assist economically distressed areas by providing employment opportunity. Three other recreation site developments—Killarney Lake near Coeur d'Alene and Beggs and Steck along the Idaho shore of Brownlee Reservoir on the Snake River—have also been completed. These sites are described earlier in the section on outdoor recreation.

Accelerated public works funds are providing for installation of 69 family units at camping, trailer, and picnic sites in Idaho. Appropriations from regular funds will permit the construction of initial facilities along the Salmon River.

Accelerated Public Works Projects

In addition to recreation sites, Accelerated Public Works funds are being used for road grading, fencing, timber stand improvement, reforestation, and other conservation or development work on the public lands in Idaho. Projects are authorized in Benewah, Booner, Boundary, Idaho, Kootenai, and Mountain Home Counties.

Further information on public lands and the activities of the Bureau of Land Management in Idaho may be obtained from the State Office, Bureau of Land Management, 323 Federal Building, P.O. Box 2237, Boise, 83701.



Operating visitor centers at our national monuments is one of the various activities of the National Park Service.



National Park Service

Approximately 85,000 acres of land in Idaho are part of the National Park System administered by the Department of the Interior's National Park Service.

Of the total, some 53,000 acres lie within the boundaries of Craters of the Moon National Monument and the remaining acreage forms part of the western boundary of Yellowstone National Park. Both the national monument and Idaho's portion of Yellowstone are described earlier in this booklet.

Under a continuing long-range park conservation and development program, the National Park Service works constantly to improve visitor facilities and services in the various scenic, historic, and scientific areas entrusted to its care.

At Craters of the Moon National Monument, for instance, a modern Visitor Center has been constructed. It houses administrative offices, as well as interpretive facilities and public rest rooms. Roads, trails, and campground facilities

have also been improved, and additional improvement work is tentatively programmed for the years ahead.

The National Park Service, however, measures its long-range program not in miles of roads and trails, campgrounds, or other improvements, but by how well the program as a whole preserves the Nation's heritage in wild lands, scenery, and historic treasures for the enjoyment and inspiration of the people, now and in the future.

Further information on areas and programs of the National Park Service in Idaho may be obtained from the National Park Service, Information Division, Department of the Interior, Washington, D.C., 20240.



Opportunities for recreation are just one of the many benefits resulting from the U.S. Army Corps' projects.



U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers is charged by Congress with controlling, regulating, and improving river and harbor resources, administering the laws pertaining to the preservation of navigable waters, and planning, constructing, and operating flood control works.

In Idaho, the Corps of Engineers is engaged largely in flood control activities (although some navigational work is done on the Snake River) and in related water conservation, recreational, fish and wildlife, and hydroelectric development.

Along the fertile Snake River plain in southern Idaho and the rugged central portion of the State, the Corps has conducted water resource investigations which have led to construction of multiple-purpose dams and reservoirs, levee, and channel improvements, and provided a basis for other long-range water developments. In addition to flood control and navigation, project plans consider such features as irrigation storage, water quality control, fishing and other water-

based recreation, municipal and industrial supply, and wildlife.

The Corps, working with State, county, and local agencies, has reduced flood damages through planning and executing effective flood fighting techniques.

In northern Idaho, the Corps Albeni Falls Project produces power, provides some local flood control benefits, and by storage regulation of Lake Pend Oreille, increases the power supply of the Pacific Northwest by a substantial amount. Albeni Falls Dam and Reservoir are located on the Pend Oreille River between Priest River, Idaho, and Newport, Wash.

A navigation project completed on the Snake River permits safe travel along the 92-mile reach between Lewiston and Johnson Bar Landing. Flood control projects have been completed on Spokane River and Lake Coeur d'Alene near Coeur d'Alene, St. Joe River at St. Maries, Potlatch River near the village of Kendrick; Black-



This is one of the Engineer Corps' public recreation installations on Albeni Falls Dam Reservoir in northern Idaho.

foot, Shelley and Heise-Roberts areas of the Snake River; and on the Boise River with Lucky Peak Dam and Reservoir near Boise. The Lucky Peak Project includes a key flood control reservoir with storage capacity to protect a 60-mile area from above Boise to the mouth of the river. The reservoir also provides recreational facilities and some irrigation storage.

The Corps has two navigation projects and four flood control projects under construction, and one power project (Asotin Dam and Reservoir) and four flood control projects authorized for construction. Under construction on the lower Snake River from the vicinity of Pasco, Wash., to Lewiston, Idaho is a ladder of four dams in Washington which will improve navigation on that reach of the river. The Dworshak Dam and Reservoir under construction on the Clearwater River are elements of the major water plan proposed for development of water resources of the Columbia River Basin. The North Fork of the Clearwater River is a major flood-producing stream and the Dworshak Project, by controlling this stream, will be one of

the most important units in the flood control system. Protection works are in progress at Boise Valley on the Boise River and on the Blackfoot River near Blackfoot. Ririe Dam and Reservoir for flood-control are being built on Willow Creek near Idaho Falls and will include facilities for irrigation, water storage, municipal water supply, and recreation.

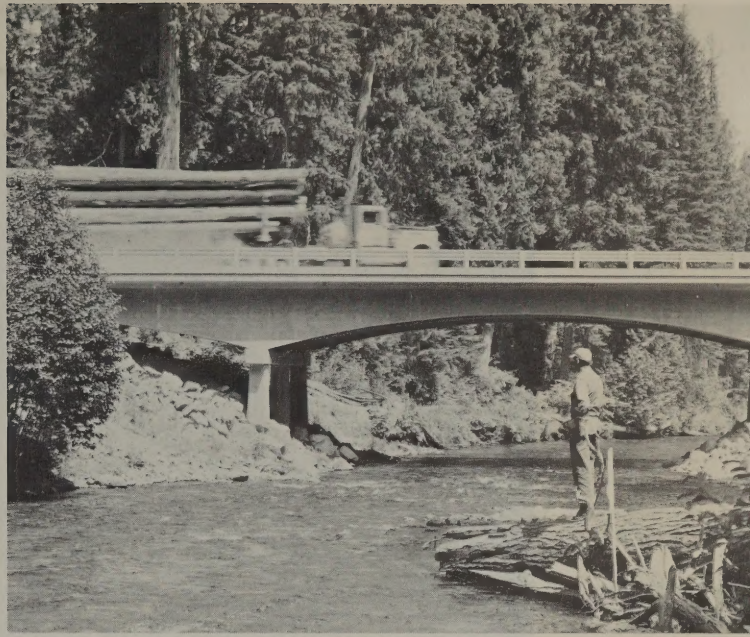
The Corps undertakes emergency flood-control work to protect threatened local areas. This work involves bank protection, removal of snags and debris in streams and channels, flood fighting, and rescue work.

Congress has directed the Corps to make surveys on potential navigation and flood control projects on various Idaho streams.

Further details on these surveys and on all Corps activities in Idaho are available in a brochure, "Water Resources Development by the U.S. Army Corps of Engineers in Idaho" which may be obtained by writing the U.S. Army Engineer Division, North Pacific, Corps of Engineers, Portland, Oregon.



Forest Service



The Nation's national forests are managed both for their valuable timber resources and their recreational value.

The Forest Service of the U.S. Department of Agriculture administers nearly 20½ million acres of land in Idaho. This agency also works in cooperation with the Idaho State Forester to aid in the protection and management of State and privately owned forest lands, and participates in research activities in order to insure continuous improvement in forest management.

National Forest Administration

The 15 National forests which fall all or partially in Idaho cover a gross acreage of 21,580,419, of which 20,298,454 acres federally owned. Eight National forests are entirely within Idaho. Seven others are partially within the State and extend into bordering States. Of the 15 forests in Idaho, 8 are in the Intermountain Region, administered by the Regional Forester at Ogden, Utah; and 7 come under the Northern Region, administered by the Regional Forester at Missoula, Montana.

Predominantly mountainous and heavily tim-

bered, the National forests of Idaho include more than 11 million acres of commercial forest land, as well as such scenic tourist attractions as the Bitterroot and Sawtooth Mountains; the Salmon, Snake, Coeur d'Alene, and Kootenai Rivers, with spectacular canyons, gorges, and waterfalls; extensive lava deposits; and gold and silver mines.

During a recent year, some 688 million board feet of timber—mostly ponderosa pine, Douglas fir, western larch, lodgepole pine, grand and alpine fir, cedar, and spruce—was harvested from Idaho's National forests. This timber was valued at \$5.5 million.

On grassy plateaus and slopes of these National forests, about 115,000 cattle and 500,000 sheep and goats grazed in a recent year, under paid permit. Here, too, are numerous game animals. In a recent year, hunters took more than 58,000 of them including deer, elk, bear, and bighorn.

Each of the National forests in Idaho is under the direction of a Forest Supervisor, and the forests are divided into districts, each



managed by a District Ranger. It is the responsibility of this administrative staff to manage these forests so that their yield over the years will provide the greatest continuing benefits in timber, range, recreation, water, wildlife, and esthetic beauty for the greatest number of people.

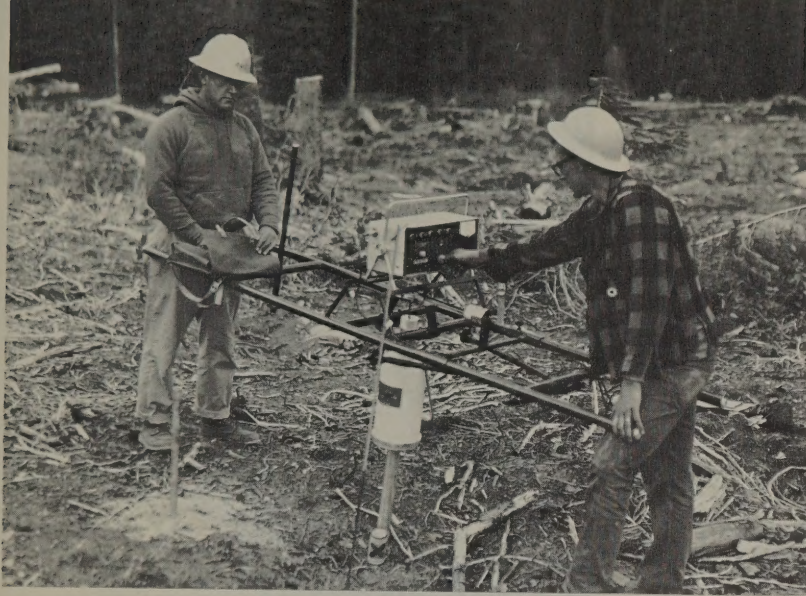
To this end, under the Forest Service's "Development Plan for the National Forests," goals have been established to meet the demands anticipated by the year 1972, and long-term plans up to the year 2000 have been considered.

In Idaho the goals for 1972 include: planting of 571,000 acres to timber; construction of 1,480 campgrounds and picnic sites and related facilities; erosion control and soil stabilization

on 134,000 acres and 1,700 miles of gullies and roads; construction of 900 miles of firebreaks and control of hazardous fuels on 126,000 acres; and construction of 8,334 miles of multiple-purpose roads and 1,553 miles of trails.

State and Private Cooperation

In Idaho, as elsewhere, the Forest Service cooperates with State agencies and private foresters on programs to protect and manage of State and privately owned lands. These activities include forest and range fire prevention and control, flood protection and watershed management, control of forest insects and diseases, and the distribution of tree seedlings for planting on private lands. These programs



This soil moisture meter collects important data which will be used in a research study (above).

(Left) The ranger points out an item of interest to a group of hikers in Sawtooth National Forest.

(Right) Fishing and boating on Pend Oreille Lake make Samowen Campground a popular place to visit.



are administered by the State Forester, while the Forest Service provides technical and financial assistance.

Research Studies to Improve Resources

Two field offices of the Forest Service Intermountain Forest and Range Experiment Station are located in Idaho, one at Boise and the other adjacent to the University of Idaho in Moscow. Notable work is done in silviculture studies for the improvement of such indigenous species as ponderosa pine, white pine, and Douglas fir.

From the field office at Boise, Forest Service researchers also undertake studies in range revegetation in a cooperative effort with the State Fish and Game Department to improve depleted winter range for deer and other wildlife in the

loose, granitic soils of southwestern Idaho.

At Saylor Creek Experimental Range near Glenns Ferry, Idaho, the Forest Service, in cooperation with the Bureau of Land Management, has been studying the grazing values of cheat-grass range for cattle and sheep.

Elsewhere in Idaho, Forest Service research projects involving watershed improvement, snowmelt measurement, control of soil erosion, and methods for dealing with insect infestations and disease of forest trees are underway.

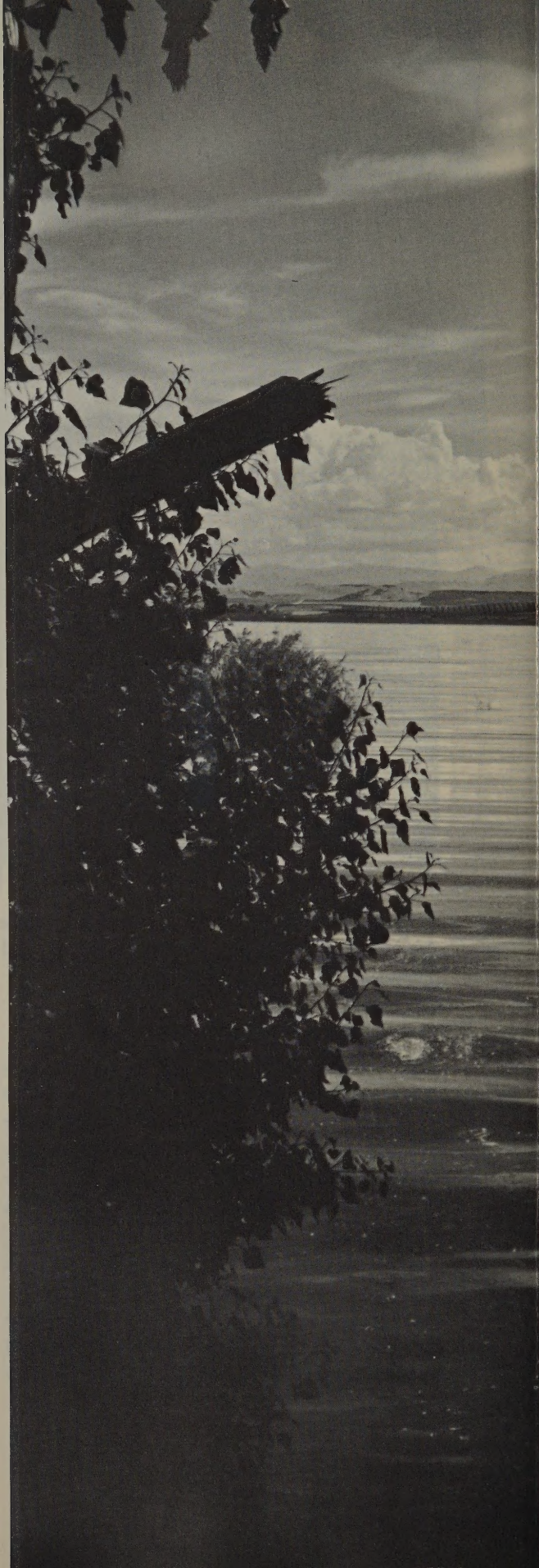
More information on Idaho's National forests and the programs of the Forest Service in the State may be obtained from the Regional Forester, Forest Service Building, Ogden, Utah (for southern Idaho), or the Regional Forester, U.S. Forest Service, Federal Building, Missoula, Mont. (for northern Idaho).

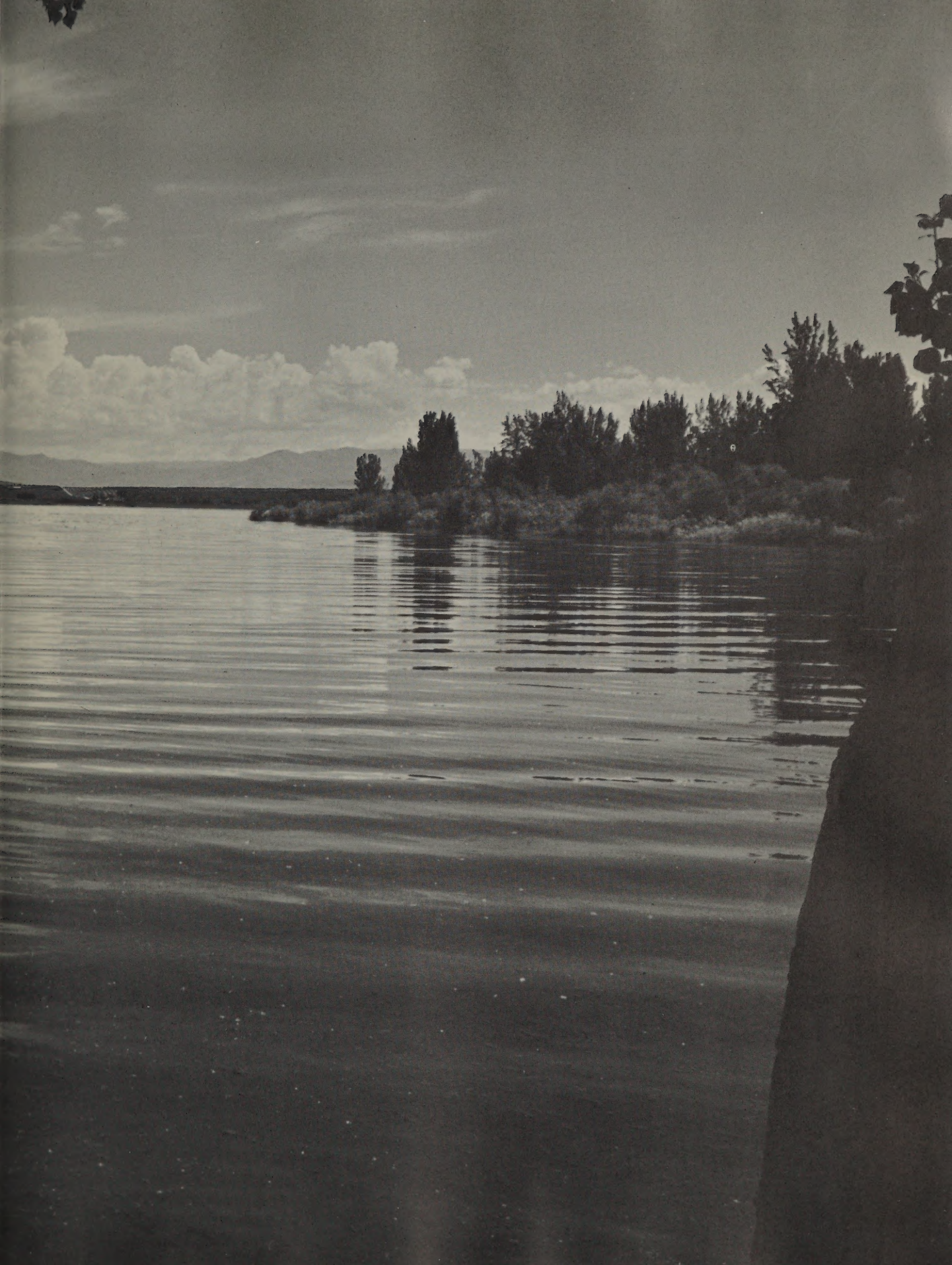
The Future

Idaho—the Gem State—is an area rich in natural resources of land, water, fish, and wildlife. An abundance of water means much to a thriving agricultural economy and offers vast recreational opportunity. Stretches of untouched wilderness hold spectacular scenery and adventure for the hardy outdoorsman. Visitors to the State's scenic wonders and historical monuments make tourism a vital industry.

From the early years of settlement, Idaho's citizens have been alert and responsible guardians of their natural wealth. The future of Idaho will be determined by what is done today to maintain and further develop its great resource heritage. Conservation and wise use of the resources of land and water mean continuing progress and prosperity.

The natural resource agencies of the Federal Government, in cooperation with State and local agencies, have contributed importantly to Idaho's growth and progress. Their efforts will continue in years to come.





Acknowledgments

The Department of the Interior is indebted to the following for illustrations appearing on pages as indicated:

U.S. Army Corps of Engineers: pp. 17 (lower right), 34, 65, 66; Forest Service, U.S. Department of Agriculture: pp. 37, 41 (right), 59, 67, 68, 69; Soil Conservation Service, U.S. Department of Agriculture: inside front cover, pp. 13 (above), 18; Idaho Department of Commerce and Economic Development: pp. 5, 31, inside back cover; National Geographic Society: front cover, pp. 7, 22, 23, 41 (left); Union Pacific Railroad: p. 9; Weyerhaeuser Co.: p. 40 (right).

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THE STATE RESOURCES SERIES

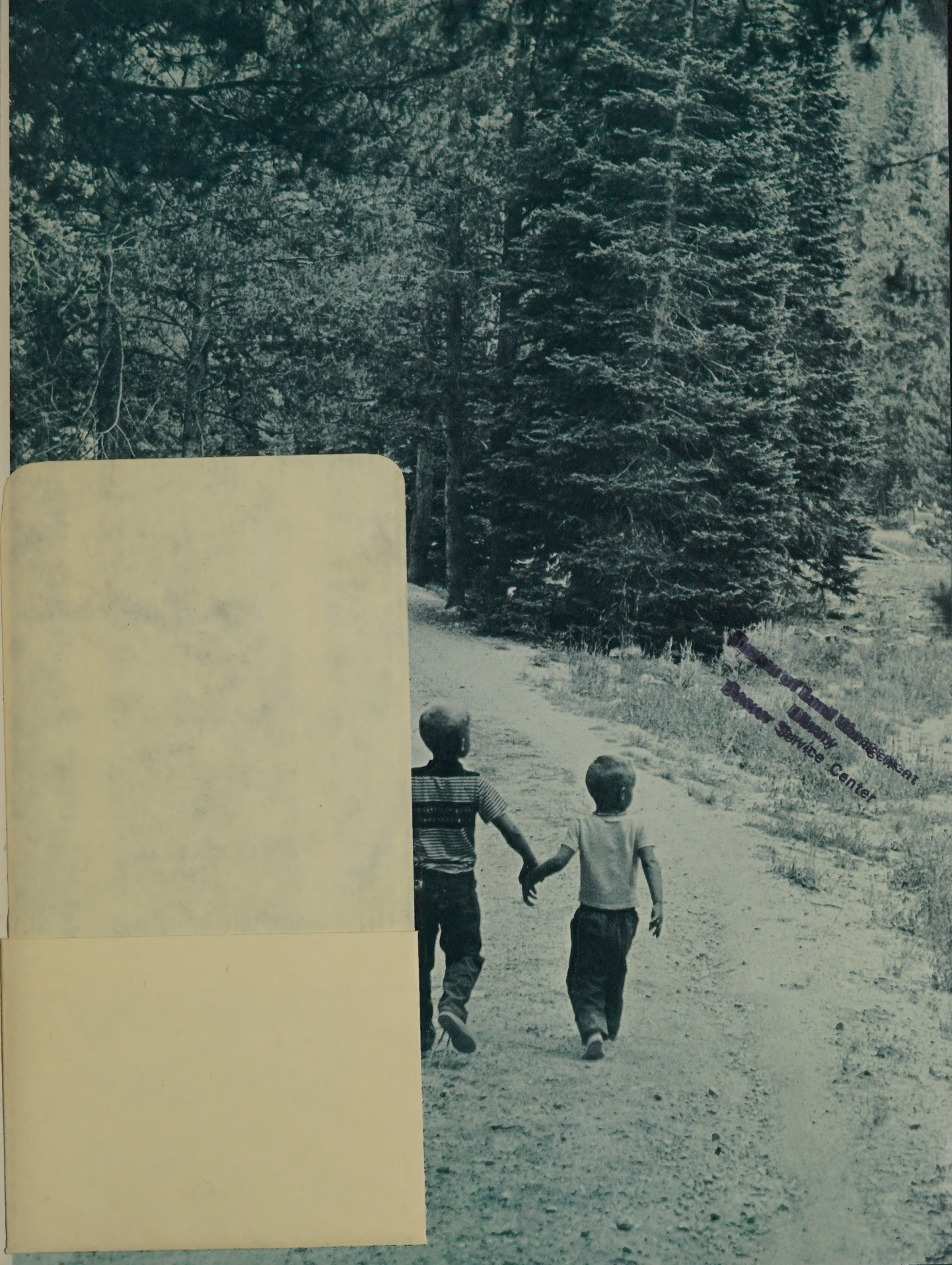
The "Natural Resources of Idaho" is one of a series of publications on various States. Similar booklets on the States of Washington, Colorado, Montana, New Mexico, Oregon, (each 50 cents), Ohio, Arizona, Massachusetts, Nevada, West Virginia (each 45 cents) are also for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

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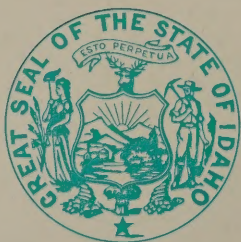
For sale by the Superintendent of Documents, U.S. Government
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Washington, D.C. 20402 Price 50 cents

After a hard day of exploring the Sawtooth high country, the two hardy wanderers make the long trek home (right).

(Back cover) Ensnconed in Idaho's rugged hills is the mining town of Burke, a producer of lead and zinc ore.



Division of Land Management
Library
Reno Service Center



Created in 1849, the Department of the Interior—a Department of Conservation—is concerned with the management, conservation, and development of the Nation's water, fish, wildlife, mineral, forest, and park and recreational resources. It also has major responsibilities for Indian and Territorial affairs.

As the Nation's principal conservation agency, the Department works to assure that nonrenewable resources are developed and used wisely, that park and recreational resources are conserved for the future, and that renewable resources make their full contribution to the progress, prosperity, and security of the United States—now and in the future.

